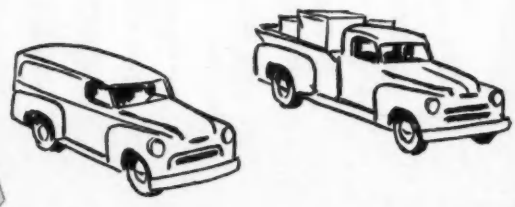
American Vegetable Grower

APRIL • 1955

AIR SPRAYING . . . WHAT IS ITS FUTURE?

If you own a light truck . .



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REDUCE ROAD DELAYS BY 70%

GET UP TO 35% LONGER MILEAGE

SIMPLIFY YOUR TIRE SERVICE

GET MORE MONEY-SAVING RETREADS

Get All These Cost-Cutting Advantages with the new Firestone Heavy Duty Transport Tubeless Truck Tire

NO OTHER tubeless truck tire can give you all the advantages of the Firestone Transport Tubeless Truck Tire . . . the first tubeless tire ever adopted as original equipment on light trucks.

The Firestone Transport Tubeless has a Safety-Liner which holds air better than a tube and eliminates delays and dangers of punctures and blowouts which result from pinched or chafed tubes. It runs cooler, resists impact breaks and is easier to service than tire and tube assemblies. Road delays are reduced by more than 70 per cent.

In addition to the many new tubeless advantages, the Transport Tubeless has the famous Five-Rib Firestone Gear-Grip tread for up to 35% longer non-skid mileage; wider, flatter tread for more than double the traction life; and the Safety-Tensioned Gum-Dipped* Cord Body eliminates tread-cracking and tire growth and permits more retreads.

The Firestone Transport Tubeless Tire costs no more than a regular truck tire and tube and can be easily mounted on any full drop center rim.

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*T.M. Reg. U. S. Pat. Off.

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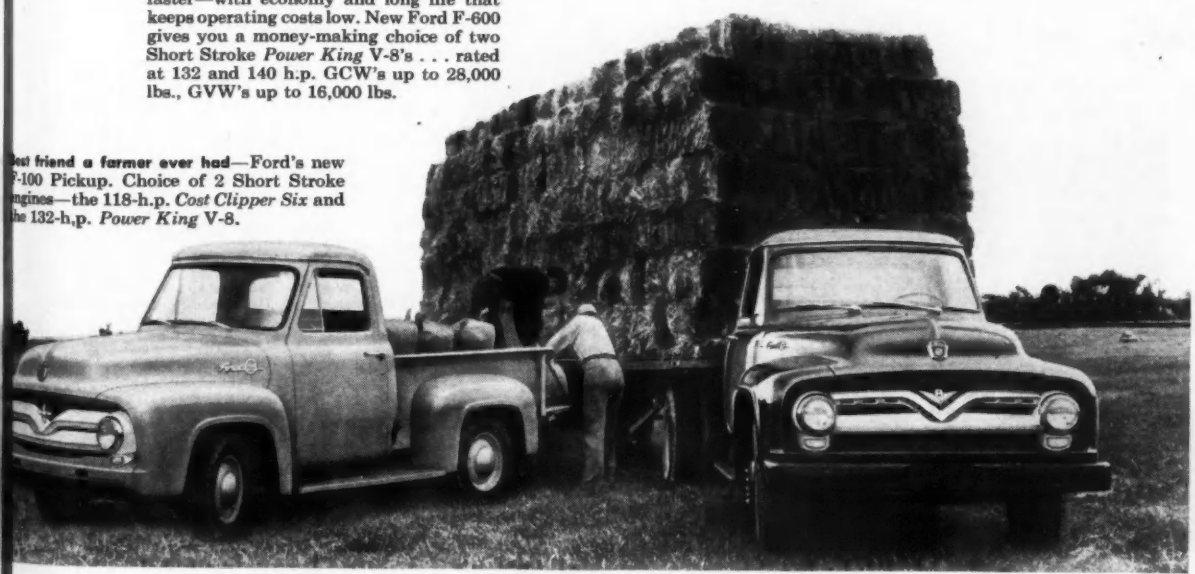
Look under the hood! Look for the engine with a piston stroke as short or shorter than the diameter of the bore. Be sure your next truck doesn't have an old-type *long-stroke* engine that may be out-dated before it earns its keep. Get the facts at the "Hoods Up Showdown". . . on now at your Ford Dealer's!

LOOK UNDER THE HOOD!

Short Stroke power to haul heavy loads faster—with economy and long life that keeps operating costs low. New Ford F-600 gives you a money-making choice of two Short Stroke *Power King* V-8's . . . rated at 132 and 140 h.p. GCW's up to 28,000 lbs., GVW's up to 16,000 lbs.

Best friend a farmer ever had—Ford's new F-100 Pickup. Choice of 2 Short Stroke engines—the 118-h.p. *Cost Clipper Six* and the 132-h.p. *Power King* V-8.



Ford Triple Economy Trucks

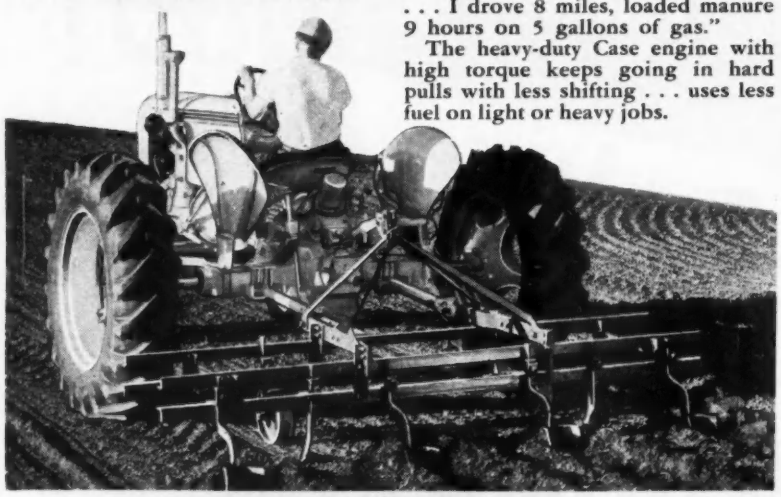
The MONEY MAKERS *for '55*

THRIFTY POWER
For Truck Farms

Here's what truck farmers say about the 2-plow Case Tractor:

"What a tractor for planting and cultivating . . . so handy and easy handling . . . easy, shock-proof steering . . . all-day riding comfort . . . best system of mounting implements available . . . you can mow at one-third the cost of larger tractors . . . I drove 8 miles, loaded manure 9 hours on 5 gallons of gas."

The heavy-duty Case engine with high torque keeps going in hard pulls with less shifting . . . uses less fuel on light or heavy jobs.



CASE

THRIFTY DIESEL... for irrigating

MODEL "509"

This unit ran 24 hours a day for three months, discharging 1,500 gallons per minute from a 167-foot well.

Your irrigating costs go way down with this new 6-cylinder, 65 H.P. Case Diesel Engine. A user reports, "I am amazed at its fuel economy. Where I used 35 gallons of gas a day, I now use 10 gallons of diesel fuel."

Built rugged for dependable service, the Case "509" engine has a 7-bearing crankshaft, 6-point fuel protection against dirt and water. It starts instantly on diesel fuel in hot or cold weather. Also four other Case engines—24 to 61 H.P.—for gasoline, LP gas or distillate.

See Your Case Dealer

Ask for a demonstration of the Case 2-plow Tractor and implements. Find out about the thrifty Case "509" Diesel Engine, too. J. I. Case Co., Dept. D-215, Racine, Wis.

American
VEGETABLE GROWER

REG. U. S. PAT. OFF.
(Commercial Vegetable Grower)

Vol. 3 April 1955 No. 4

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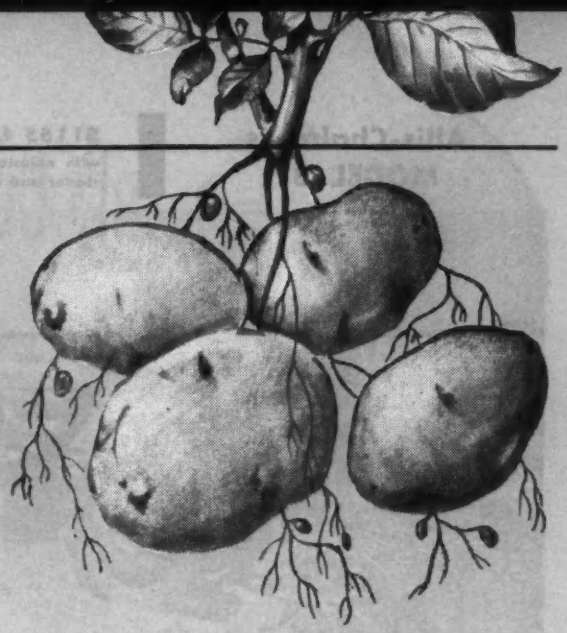
First successful control for many plant diseases and blights—now ready for use this spring



Saves crops! Boosts yields!

Agri-mycin* 100

Commercial vegetable growers can, for the first time, prevent the huge losses of yield and market quality caused by bacterial plant diseases against which—up 'til now—there has been no effective control. In addition to controlling disease, increased yield and better crop quality result.

For example, even in soils heavily infected with potato blackleg and soft rot, Agri-mycin 100 used as a seed piece dip, produced a full stand of healthy, vigorous plants . . . *yields were increased up to 72 bushels per acre over untreated plantings.*

This last season, Florida tomato and pepper growers, using Agri-mycin 100 as a plant bed spray, averted an epidemic of bacterial spot that threatened thousands of acres . . . *treated tomatoes showed an increased yield of 42%, as well as an increased fruit size of 28%.* Wide-scale test on many other crop diseases (see list below) are still in progress at state agricultural research stations and by leading growers.

Your regular supplier of spray materials has Agri-mycin 100 now. Use it this spring to help insure top yield and top quality for you.

At this time, Agri-mycin 100 is recommended for the prevention of:*

BLACKLEG AND SOFT ROT OF POTATO

•

BACTERIAL SPOT OF TOMATO AND PEPPER

•

Also a fast proved control for fire blight of apple and pear, wildfire and blue mold of tobacco, walnut blight, bacterial wilt of chrysanthemums, bacterial leaf rot of philodendron.

Further tests are now in progress to determine most economical control measures for:

HALO BLIGHT and COMMON BLIGHT OF BEANS
BACTERIAL BLIGHT OF PEA
BACTERIAL ROT OF CABBAGE
BACTERIAL SOFT ROT OF CARROT
BACTERIAL WILT OF CUCUMBER
BACTERIAL CANKER OF TOMATO
BACTERIAL WILT OF CORN

One jar makes up to 400 gallons of spray or dip. Water soluble, noncorrosive and nonclogging, nontoxic.
Pat. pending

Pfizer

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World's largest producer of antibiotics
Terramycin® brand of Oxytetracycline

Allis-Chalmers MODEL B

$1155 f. o. b. factory
with adjustable front axle, lights, starter and standard tires.

COST-CUTTING FULL-RANGE TRACTOR POWER

The Model B rates high among nursery, vegetable and specialty growers because it so quickly repays their power investment. Here is a tractor built for all kinds of field work, at a price that's practical for every commercial operation. Thousands are in use from coast to coast.

This husky 20-horsepower tractor easily handles a 2-bottom, 12-inch moldboard plow or 6-foot tandem disc. You can plant, cultivate, mow, spray — do all your power jobs — at a real saving in fuel and overhead costs. For many growers the Model B has mechanized the whole range of field operations from plowing and discing to planting and cultivating.

The Model B is available as a standard four-wheel tractor, or with an adjustable front axle and with a wider range of wheel treads . . . front and rear. Hydraulic lift, power take-off and belt pulley are furnished at extra cost.

On every power job the dependable Model B multiplies your efforts, conserves your valuable time, increases your profits. Before you buy a tractor, see your Allis-Chalmers dealer about the Model B.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

LETTERS TO THE EDITOR

Oklahoma Sweetpotato

Dear Editor:

Your article on Tom McGinnis in the January issue of AMERICAN VEGETABLE GROWER was very interesting. I am a vegetable grower here in Florissant, Mo., and I was surprised at the unusual yields Mr. McGinnis is getting with the Oklahoma sweetpotato. I have been trying to purchase some of this seed, but so far I've been unsuccessful.

I am writing to you hoping that you can give me the name of a dealer or grower who can supply me with some certified seed.

Florissant, Mo. Charles B. Fallert

We have received a number of requests for sources of supply for the Oklahoma sweetpotato. So far, the only source of plants we have been able to locate is Mr. McGinnis himself. He has put about 400 bushels of Oklahoma sweetpotatoes in beds. These will be ready for market about the first of June. According to Mr. McGinnis, it is best not to set the plants sooner since they grow very fast and mature sooner than most sweetpotatoes. For those interested, write to Tom McGinnis at Crumpton, Md.

Borax for Cauliflower

Dear Editor:

In the February issue there was a letter to the editor about using borax for cauliflower in order to improve its quality. I have been raising fairly good cauliflower but always try to improve my produce.

What I would like to know is what kind of borax was used and where I can purchase it.

I certainly have enjoyed and learned a lot from your magazine.

Romulus, Mich. John R. Sell

The borax used was of the common variety and can be purchased from your dealer.—Ed.

New Maryland Reader

Dear Editor:

A few days ago I received my first copy of AMERICAN VEGETABLE GROWER. It is a fine magazine—I'm glad I subscribed. Thank you for this new publication which caters to our needs.

Federalsburg, Md. J. Leon Towers

We are happy to hear from our new reader in Federalsburg, Md., who also advertises on his letterhead Towers Pot O'Gold Brand Florida Citrus.—Ed.

Plastic Greenhouse

Dear Editor:

. We have followed with great interest your news from time to time on the plastic greenhouse and are glad to know that working plans are now available.

We enjoy each issue of AMERICAN VEGETABLE GROWER.

Thomas & Kirkton Co.
Canon City, Colo. Ray Shoop

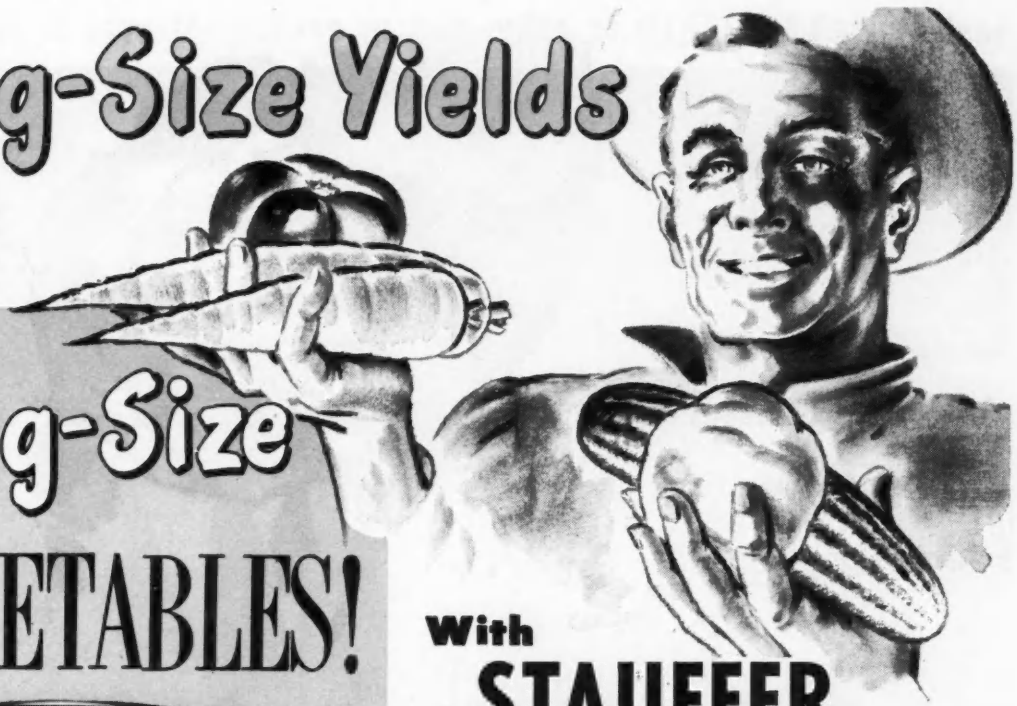
Dear Editor:

Enclosed is 25 cents in coin for the working drawings of the University of Kentucky plastic greenhouse.

Thank you for making this possible for those of us that dreamed of owning such a building and never could afford one.

Thompson, Ohio Mrs. Steven M. Pastor

King-Size Yields of King-Size VEGETABLES!



With STAUFFER CAPTAN 50-W

and with CAPTAN 7.5 Dust!

STAUFFER CAPTAN CONTROLS THESE DISEASES:

TOMATO: Alternaria (Early Blight), Septoria, Phytophthora (Late Blight), Anthracnose, Stemphylium.

CUCURBITS: Angular Leaf Spot, Anthracnose, Downy Mildew.

POTATO: Early and Late Blight.

CARROT: Septoria and Cercospora.

BEANS and PEAS: Damping off on Beans and Root Rot on Beans and Peas.

For King-Size yields of truly outstanding vegetable crops—for greater disease-control protection per dollar per acre, it's STAUFFER CAPTAN 50-W! This remarkably effective modern organic fungicide controls a wide variety of fungi on many vegetables and assures truly superior crops of exceptional size and quality. With CAPTAN, you can *see* the difference!

FOR DUSTING PROGRAMS: CAPTAN 7.5 DUST in an outstanding fungicide and may be used in place of spray at recommended applications.

STAUFFER RESEARCH

Agricultural chemical research in STAUFFER laboratories across the nation constantly seeks to prove and improve products. From rigid laboratory tests, through pilot plant production and extensive field trials, new STAUFFER products are thoroughly evaluated and perfected before commercial quantities are offered to agriculture. Eminent plant pathologists, entomologists, and agronomists serve you, through each STAUFFER agricultural product.

Send now for descriptive literature about these and other STAUFFER pesticides. *Stauffer Chemical Company, 380 Madison Avenue, New York 17, N. Y. Sales offices in principal cities.*

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Victor Chemicals improve fertilizers . . .

Spectacular crop improvement plus big savings in time and labor . . . that's the exciting story of the new fertilizers. It's a story in which Victor plays an important part. Victor diammonium phosphate and special phosphatic solutions contribute greatly to the amazing effectiveness of today's plant starters, high analysis and liquid fertilizers. Victor chemicals serve agriculture in many ways with phosphatic solutions for fertilizers, and phosphates for feed supplements.

Today, more than 40 industries employ phosphates, formates and oxalates. For information on how these useful chemicals are put to work in your industry . . . write: Victor Chemical Works, 155 North Wacker Drive, Chicago 6, Illinois. In the West: A. R. Maas Division, South Gate, California. You'll find . . . *It pays* to see Victor!

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Completely soluble plant food
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VICTOR
Dependable Name in
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HERE'S HOW it pays to package in film made of BAKELITE Polyethylene

Packaging by **Milprint Inc.**, Milwaukee, Wisconsin.

"... our savings are high"

That's only one part of the advantages Elon Gilbert* finds in packaging "Apple King" apples in bags manufactured from film made of BAKELITE Brand Polyethylene.

One of the northwest's leaders in packaging bagged fruit, Mr. Gilbert says, "We use polyethylene bags because they give us safety and there is less danger of breakage. They prevent dehydration of fruit and those varieties that are prone to shrivel store very well in polyethylene bags. Our plant uses a special line for bagging. After we get our line set up, *our savings are high*. We believe that the bags move the fruit faster at the retail level—sell the fruit more quickly."

Whether you grow or ship apples, potatoes, or any of many other fruit and produce items, the protection, brand identification, and sales appeal of polyethylene bags can mean greater sales at better farm, terminal and retail prices. Throughout the country there are suppliers of packaging bags made of film produced from BAKELITE Polyethylene. See your supplier today, or for a free informative booklet write Dept. BT-105.

*Mr. Elon Gilbert is a large grower-shipper at Yakima, Wash., and former president of the Washington State Horticultural Association. Apples shown are "Starking Delicious."

REMEMBER, TOO: Another wonderful product for your farm is plastic water pipe made of BAKELITE Polyethylene. So light in weight it's easiest to install.

SPECIFY FILM MADE OF

BAKELITE
BRAND
Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

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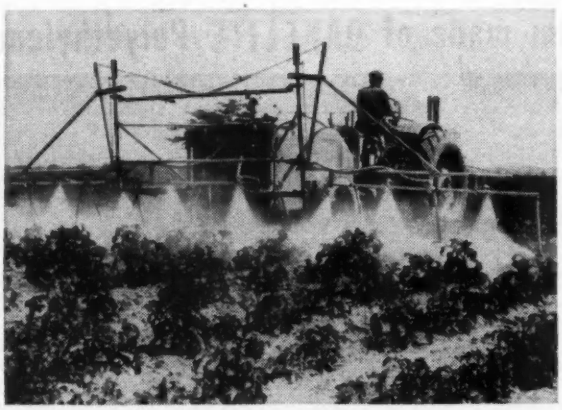
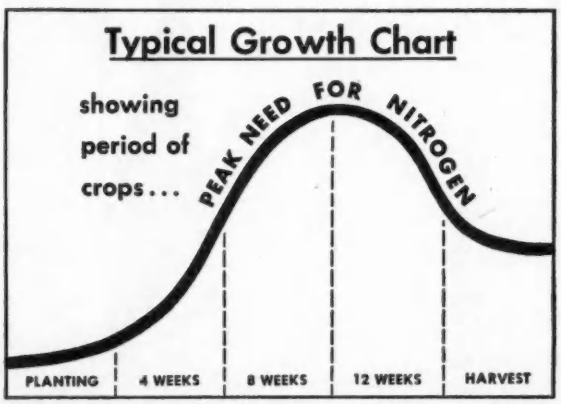


1. "NuGreen" works fast as a foliage spray. Combine it with pest-control sprays to eliminate separate nitrogen applications. Saves time, labor. Won't corrode equipment.

2. "NuGreen" is efficient for side dressing or top dressing. "NuGreen" resists leaching, stays in the soil to feed your crop yield-building nitrogen as it grows.

3. "NuGreen" can be applied in any irrigation system to save you time, labor. "NuGreen" reaches roots, because it isn't fixed in top few inches of soil.



4. "NuGreen" feeds crops when they need it most. Different crops have top need for nitrogen at different growth stages. "NuGreen" will feed your crop as needed.

To feed your crops nitrogen when they need it most ...use NuGreen® FERTILIZER COMPOUND

"NuGreen" is concentrated, free-flowing, and readily soluble in water. It comes in 80-lb. bags. There's a place on your farm where Du Pont "NuGreen" can increase your profits. See your dealer for "NuGreen," today. Ask for free literature giving crop recommendations.

E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Wilmington 98, Delaware

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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

NuGreen® FERTILIZER COMPOUND

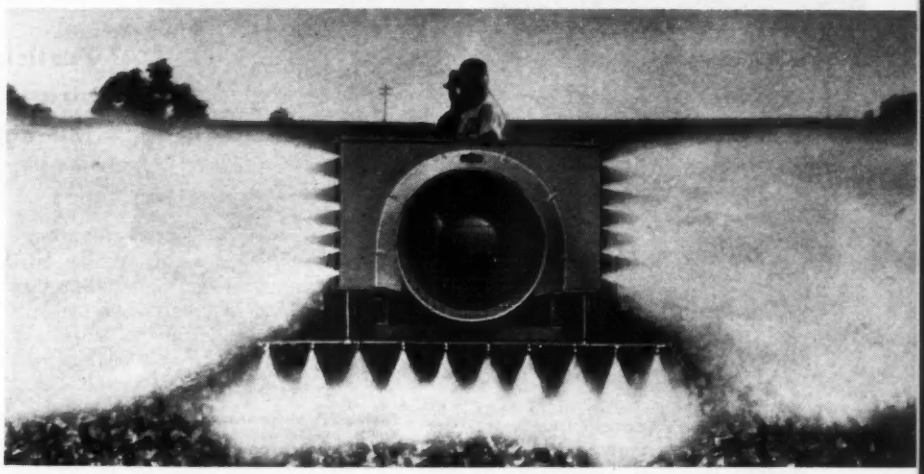
Your best buy in supplemental nitrogen

AIR SPRAYING

What Is Its Future?

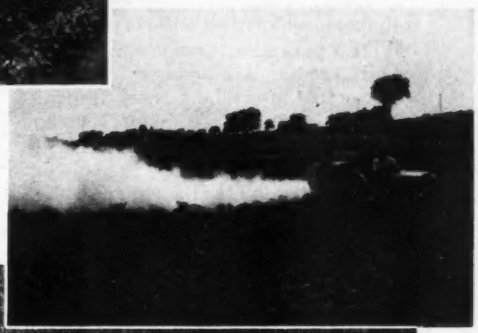
Savings in labor and over-all costs indicate a bright future for this new, quicker method of applying spray materials

By H. G. INGERSON
John Bean Division



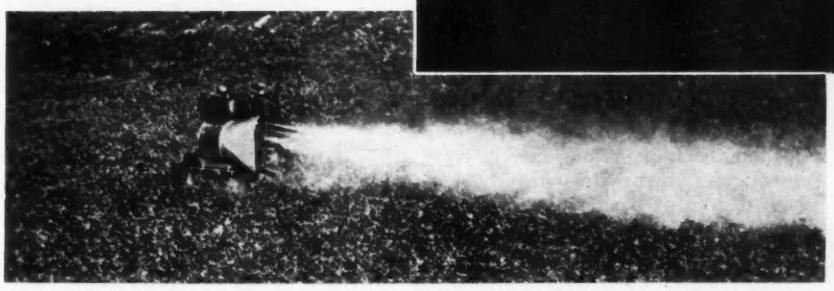
Above—Thorough coverage of wide areas is possible with row-crop air spraying attachments such as Besler's Bes.Bio.

Left—Water conservation in the application of is a feature of concentrate air-blast row-crop sprayers as made by Myers.



Right—Dust particles are effectively blown out over rows of crops with Buffalo Turbine's unit.

Below—Twenty rows of potatoes are protected in a 15 to 20 mph wind with a Bean attachment.



AT vegetable growers' meetings, summer field days and demonstrations these past several seasons, the question has been asked many times, "Is air spraying here to stay in commercial vegetable production?"

First, let's be sure we are all agreed on what "air spraying" is. It is the spraying of vegetable crops with the air type of tractor-hauled sprayers as compared with conventional boom-equipped hydraulic sprayers. In this type of spraying a large volume of air at medium velocity carries the spray chemicals to the plant in the form of finely broken up liquid spray rather than piping the spray material through booms as has been the common practice ever since commercial row-crop spraying was started. Air spraying can be done either with dilute spray materials, as in boom spraying, or so-called "reduced gallonage" or "concentrate spraying."

What is concentrate spraying? It is more simple than the name implies. It is using the same amount of chemical per acre with only a fraction of the water used in dilute spray formulas. The degree of concentration is usually 2, 3, or 4 times the dilute formulation and is spoken of as 2X, 3X, or 4X concentrate. For example, in a 2X concentrate you use just one-half the amount of water used in dilute spraying. The advantages of concentrate spraying in row crops are not only the greatly reduced water hauling, but quicker drying of the spray material in the event of rain following an application. Another advantage is that chewing insects are killed more quickly.

Concentrate spraying is precision spraying, and 2X is a good place to start the first season of air spraying, moving up to 3X or 4X as you gain experience in the method.

How satisfactory is coverage? Air spraying has been done commercially since 1945. First users were commercial growers, canners, and custom operators in Pennsylvania, New Jersey, and Illinois. All of these early users reported satisfac-

(*Continued on page* 34)

PROGRES In

Pesticides, systemics, parasites, viruses, are today's weapons in the fight against insect enemies

By G. J. HAEUSSLER
U. S. Department of Agriculture

Photograph above shows eggs, larvae, pupa, and adults of Mexican bean beetle in natural position on the under surface of a bean leaf.

STRIKING developments in the control of many insect pests, including those of importance to the vegetable grower, are continually being made. These are providing more effective means of combatting insects than was even dreamed possible 25 years ago. Nevertheless, consistent scientific progress against insects is essential to enable us to produce the necessary supply of high quality vegetables required by the ever-growing population.

DDT, methoxychlor, toxaphene, lindane, chlordane, aldrin, dieldrin, TDE, parathion, malathion, TEPP, and Aramite are some of the many powerful insecticides and miticides now in common use. Some vegetable growers are even beginning to use the systemic materials such as demeton. With such an imposing array of pesticides available it would seem that most of our vegetable insect problems should be well solved.

Unfortunately, however, perplexing problems still exist. A look at a few of them and at what is being done to overcome them may be of interest.

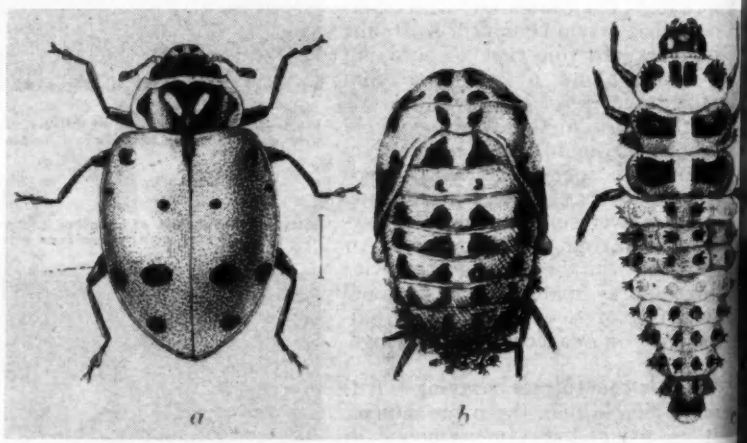
The question of insecticide residues has long been of major concern. New insecticides, many of which have a high degree of toxicity and long residual effect, have added to rather than solved this problem. Federal, state, and commercial agencies are intensifying research on the toxicology of insecticides. Materials are recommended for use in the soil or on food crops only after careful studies have shown that harmful residues will not occur on or in the edible products. Also, when necessary, the harvested products are evaluated to ascertain any possible adverse effect on flavor. Therefore, by using the pesticides only in accordance with recommendations, growers are assured their treated crops will be free of objectionable residues or flavor resulting from the insect control measures used.

Among the new methods of applying insecticides, widely used by vegetable growers, is seed treatment prior to or at the time of planting. Combinations of small quantities of insecticide and fungicide applied to the seed, either as a dry powder or as a slurry, provides dual protection to crops such as beans, cucumbers, and melons from damage by the seed-corn maggot and seed-borne plant diseases. Residue problems are not encountered or are at a minimum with such treatments.

A problem of major importance to vegetable growers in some areas is the tendency of certain insects and mites to develop resistance to commonly used insecticides or miticides. Many growers now find that DDT, formerly very effective against the cabbage looper, no longer satisfactorily protects their cabbage, cauliflower, and lettuce from damage by this pest. To control it they must now use other materials such as toxaphene and endrin.

The green peach aphid on potatoes has become resistant to DDT and parathion in parts of Washington and Oregon. Yet these same materials still give satisfactory control of this insect on potatoes in Maine and elsewhere.

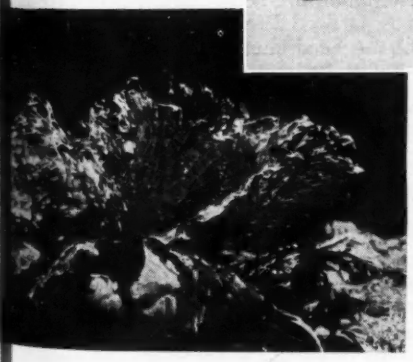
Other vegetable pests which, according to reports, have recently become increasingly difficult to control in some parts of the country with materials formerly effective include the Colorado potato beetle, the potato flea beetle, the imported cabbageworm, the



Important predator of insect pests is convergent lady beetle. a) Adult, b) pupa, c) larva.

In the Never-Ending INSECT BATTLE

Above — Aphids on stem of a potato plant.



Below — Cabbage plant severely injured by cabbage loopers. A few black diseased loopers can be seen hanging from plant.

Seed corn maggot injury to sprouting beans.

Mexican bean beetle, and spider mites on greenhouse-grown vegetables and on strawberries.

Research is being intensified to find effective alternative materials or measures that can be recommended to protect vegetables from these pests that are no longer satisfactorily controlled by the standard insecticides.

Studies in Arizona have shown that the use of DDT on cantaloupes destroys many of the parasites and predators that usually help reduce populations of the melon aphid, leafhoppers, leaf miners, thrips, and spider mites. Also that the experimental use of dieldrin on cantaloupes resulted in increased spider mite infestations, indicating that this material may have killed many of the natural enemies.

Recent field studies in California showed that DDT, heptachlor, aldrin, isodrin, endrin, dieldrin, chlordane, Diazinon, toxaphene, and parathion are very toxic to the lady beetles, predaceous bugs, lacewings, and spiders which serve as important natural enemies of lygus bugs on beans.

Such observations emphasize the need for more intensive research to determine the effect of pesticides on the natural enemies of vegetable insect pests.

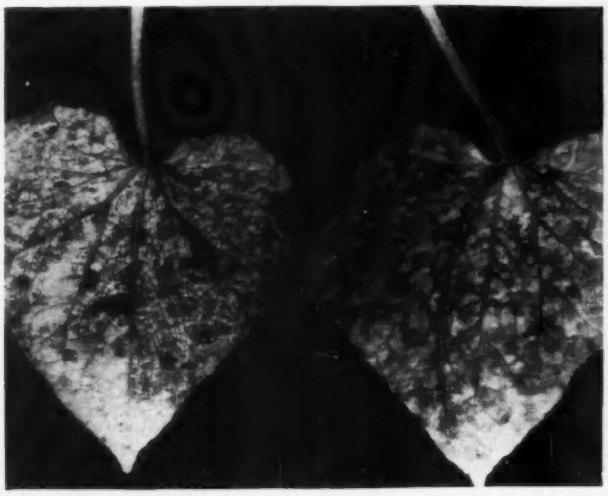
During the past two years many thousands of egg parasites of the beet leafhopper, bred from material obtained in the Mediterranean area, have been released in California, Arizona, Utah, and Idaho. This work is carried on co-operatively by the entomology research branch of the USDA and the University of California. If these parasites become established they should aid in protecting tomatoes, beans, cantaloupes, spinach, beets, and other susceptible crops from curly top, the destructive virus disease transmitted by this leafhopper.

The use of diseases of insects to help control injurious pests has long been considered by entomologists and pathologists. Renewed interest in this has been stimulated in recent years by increased knowledge of the effect of diseases on insect populations.

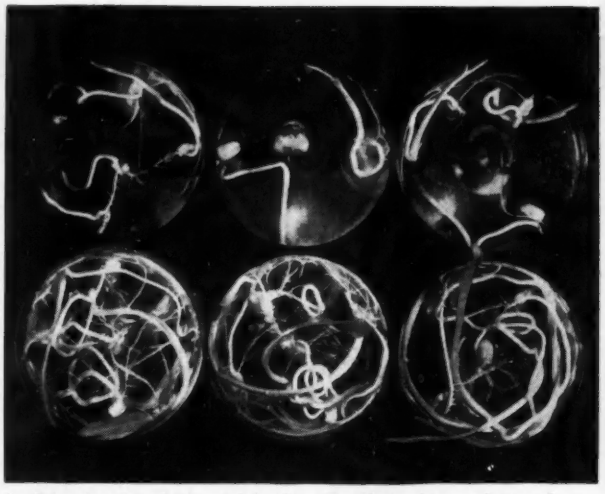
The successful use of the bacterial milky diseases for control of Japanese beetle grubs in the East and the dissemination of a virus disease from aircraft to combat the alfalfa caterpillar in California are outstanding examples of the practical value of this natural control method.

Some of the micro-organisms that affect insects can be produced in large quantities and are easily distributed in the form of sprays or dusts. They are harmless to animals and plants.

(*Continued on page* 35)



Downy mildew rapidly destroys the foliage of cucumbers, especially if weather is wet or humid.



Seed treatment protects seed in the soil. Photo shows cultures of untreated (top) and treated seed.

DISEASE CONTROL Means Quality Crops

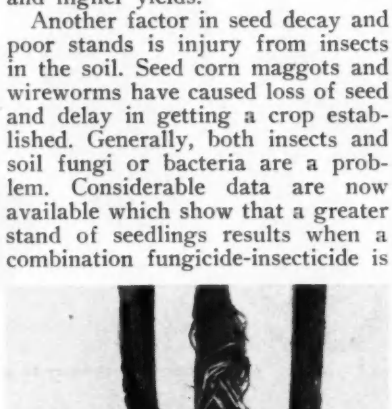
Control starts with the planting of treated seed followed by effective spray programs

By L. O. WEAVER
University of Maryland

IN this age of specialization in production of vegetable crops, growers must control plant diseases and insects to produce high yields of good quality crops. Numerous organic fungicides have been tested and proven for vegetable disease control. Also, there is less danger of injury from the organic fungicides than from the copper fungicides in use a few years ago. Growers are advised to consult their State agricultural experiment station or county agent for latest recommendations on special crops. Some diseases are more important in one area than in other areas; the selection of proper fungicides, therefore, becomes an important problem.

Combination Seed Treatments—Many vegetable seeds are planted in the spring when soil temperatures are cold, and the ground often becomes wet after the planting operation. Wet, cold soil, unfavorable for seed germination and seedling growth, is favorable for soil-inhabiting fungi to attack the seed and tiny seedling. Seed treatment with fungicides to prevent seed decay has been practiced for a number of years. This protection of the seed in the soil has resulted in increased stands of seedlings, stronger plants, and higher yields.

Another factor in seed decay and poor stands is injury from insects in the soil. Seed corn maggots and wireworms have caused loss of seed and delay in getting a crop established. Generally, both insects and soil fungi or bacteria are a problem. Considerable data are now available which show that a greater stand of seedlings results when a combination fungicide-insecticide is used in treating the vegetable seed.



Alternaria canker on tomato seedlings. Disease later spreads to leaves and fruit in the field.

In Maryland in 1954, snap and lima bean seed treated with such insecticides as dieldrin, lindane, and chlordane alone or in combination with a fungicide such as thiram, captan, or chloranil produced significantly higher stands than untreated seed or seed with only fungicidal protection. In other areas combination seed treatments are also recommended for sweet corn and pea seed. Examples of commercial combination seed treatments are I & D Seed Protectant, Delsan, and Ortho Seed Guard. Seed protectants should be considered as insurance against loss of seed and an unsatisfactory stand.

Tomato Disease Control—The most common and in the long run the most serious disease of tomatoes is **early blight (Alternaria).** It is present every year almost wherever tomatoes are grown. Early blight attacks plants at all stages of growth, causing stem cankers, leaf spotting, and fruit rot. Collar rot is the first stage of early blight. Spots on stems and leaves are dark brown, target-like, and irregular in shape. Infection of flower stems may cause dropping of flowers and small fruit. Dark, leathery, sunken spots are formed on older tomato fruits at

(*Continued on page* 31)

STATE NEWS

- **Texas Has a New, Early Industry—Asparagus**
- **Michigan Growers Reap Benefits from Merchandising Program**

New Asparagus Industry

TEXAS—The first crate of asparagus from the first large-scale commercial acreage in Texas was shipped to President Eisenhower, and other crates followed in short order to the big northern markets.

The new Texas asparagus industry, slated to liven asparagus-starved appetites before the arrival of California shipments, hit the markets in early February and was reported to be of fine quality and good size.

This first Texas asparagus (sold under the Nine Brothers Brand) is grown on 315 acres near Uvalde.

Onion fields in the Lower Rio Grande Valley have been hurt by blight and lack of moisture. This area represents an estimated 10,000 acres of onions, of which 6,000 acres are dry land. Growers in the area estimate that the early predicted tonnage may be cut by 50 per cent.

Marketing Program Pays Off

MICHIGAN—Michigan State College's marketing program, begun last summer, is already paying off in benefits to growers, retailers, and consumers. Officials of the extension service credit the new district marketing agents with having helped the state's farmers net thousands of dollars more from their produce.

This was done by giving farmers up-to-date information on prices, grading, packaging containers, and alternative markets. Said one tomato grower at a demonstration of grading methods and equipment, "I've heard and read about tomato grading many times, but now I feel for the first time that I know how to grade and pack."

Retailers are also getting demonstrations of better merchandising practices. And Mrs. Housewife can attend lectures in her neighborhood market designed to teach her how to get the most from her food dollars.

Sprinkler Irrigation

KANSAS—Many vegetable growers are installing sprinkler irrigation systems this year. Growers using irrigation in 1954 generally obtained good returns.

Kandee and Nemagold sweetpotatoes are catching the interest of growers in the Kansas City and Wichita areas. The market demand for Kandee has been extra good this season.—*William G. Amstein, Ext. Hort., Manhattan.*

Co-operative Effort

MINNESOTA—"Potato men from all over the country are getting closer together," William M. Case, executive director of the National Potato Council, told Red River Valley potato growers March 8. "They are only one part of the big picture, and they realize that one section of the country cannot be prosperous without the other."

Case also outlined a major council program to push potato sales. Promotional efforts are stressing the nutritional and economy values of potatoes. The Council is also encouraging the meat, poultry, and fish industries to plug potatoes as a "companion food" to their products.

Cellophane-Packaged Cauliflower

CALIFORNIA—The first shipment of packaged, premium quality, California cauliflower arrived in New York March 13, in a refrigerated truck. Shipped from the Irvington, Calif., fields of the Fudenna Brothers, each head was trimmed, ready for cooking, and overwrapped in cellophane within a few hours before being loaded on the refrigerated truck. All following shipments will be made by rail.

Based on the experience of the Fudenna Brothers, shipping charges for cauliflower packaged in cellophane are much lower than on the unpackaged. A freight car, they report, can carry 60 per cent more, or 816 cartons of cellophane-wrapped heads, against 510 unwrapped. And many unwrapped heads may arrive in damaged condition.

The California growers also are relying on the advantages that a quality product, plus brand identity, gives them in the competition for sales. The printed cellophane overwrap on Fudenna cauliflower prominently features brand identity. It also has a place for marketing weight and price.

Horseradish Interest . . .

ILLINOIS—More growers are raising horseradish than ever before. There's about 50 to 75 per cent more acreage now than there was three years ago. The keen interest is due to the high price paid for horseradish.—*Arthur Selme, Sec'y, Illinois State Vegetable Growers Assn., Rock Falls.*

Seed Potato Test

MAINE—Ninety per cent of the seed potato acreage in Maine contains less than one-half of one per cent of virus infection, results of the Maine Agricultural

(*Continued on page* 28)

KNOW YOUR VEGETABLE SEEDS

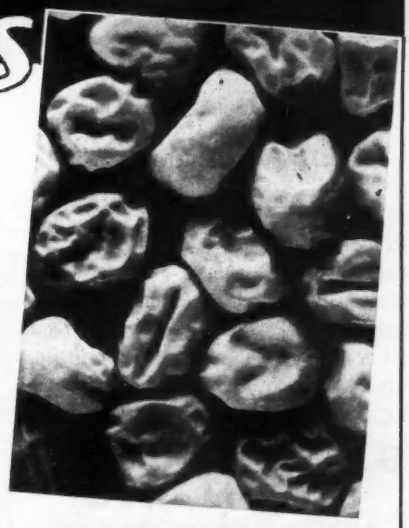
By VICTOR R. BOSWELL
U. S. Department of Agriculture

PEAS

SEED demands for growing garden, or English peas, are greater than for any other vegetable crop, accounting for about 60 per cent of the total tonnage of vegetable seeds produced in the United States. Pea seed tops the list in pounds planted per acre as it does also in cost of seed per acre. It is at the bottom of the list in yield obtained per pound of seed sown. Domestic pea seed production for 1947-53 averaged about 120 million pounds on about 112,000 acres, annually—roughly a fourth as many acres as are devoted to peas for commercial market and processing. Wrinkled-seeded varieties make up 75 to 80 per cent of the total.

Seed peas are grown chiefly in Washington, Idaho, Montana, and California where the climate favors good yields, good harvesting conditions, and a minimum of seed-borne diseases such as ascochyta blight, bacterial blight, and anthracnose.

"Like as peas in a pod" may be a very useful expression, but pea seeds are not all alike for even one variety. It is no simple matter for the seedsman to produce commercial stocks that are as uniform and true to type as his customers desire. Even in stocks that are highly uniform genetically some seeds show varying degrees of mechanical injury, weathering, or other adverse effects that will impair their productivity. Although the general level of quality of seed peas is high, research groups of seed producers, pea processors, and public agencies are seeking ways to improve the quality still further.



IT'S THE SHINE THAT SELLS!

USE WAX-SHINE

- For eye-appeal
- To preserve freshness
- For longer store life
- To prevent shrinkage
- To increase sales

NEW JOHNSON'S WAX-SHINE, a product of Johnson's Wax, makes vegetables glow with just-picked freshness . . . makes them stand out on display . . . practically pops them into shoppers' baskets.

Johnson's Wax-Shine is odorless, inexpensive, and easy to apply. Most vegetables grade better and bring premium prices when treated with Wax-Shine. If you pack, ship, job or retail vegetables, it will be worth your while to contact your local Johnson distributor, or write:

S. C. JOHNSON & SON, INC.
Agricultural Waxes, Dept. AVG-4
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A product of JOHNSON'S WAX Research

JUNIOR GROWERS WILL MEET IN NEW ORLEANS

Boys and girls must compete in projects this summer to be eligible for prizes during convention

THIS year's National Junior Vegetable Growers convention locale will be the colorful city of New Orleans, La., and the dates a week later than usual, December 11-15. Headquarters will be the Jung Hotel. General arrangements will be in charge of Joseph Montelaro, Donald Spurlock, B. B. Jones, John Cox, and their associates in the Louisiana extension service.

An outstanding meeting is planned including tours through the French market area, the docks, many historical points in and around New Orleans and production areas in the Delta region. Detailed program plans will be announced later.

Plan Your Garden NOW NJVGA President Urges

Greetings from "Colorful Colorado"! I hope the New Year is treating you well and that you're busy ma ing your NJVGA plans for the coming months. Here in Colorado we've been having nice cool weather but no moisture.

Have you started planning your garden yet? The garden should be planned on paper first. It is much easier to destroy a row of undesirable vegetables with an eraser than with the hoe. Don't plan to plant the entire garden all at once when the "spring urge" gives you untold ambition. Plan for an early garden, plan for a canning garden, and plan for a storage garden. Garden planting started in March and will extend through July.

A good rule to follow when starting to lay out a garden plan is: plant first things first and plant them close to the kitchen door. As the season warms up, proceed across the garden with the last plantings. Care must be taken not to plant corn or pole beans where they will shade other crops. Decide where your garden is going to be, how big it will be and what kinds and varieties of vegetables you will plant. How much of each kind of vegetable should be planted? The whole family should go into conference on these important questions.

Order your seeds if you have not already done so; be sure to get varieties that are adapted to your community and liked by your family. Check your growing season (the period between the last killing frost in the spring and the first killing frost in the fall) to make sure that your varieties will mature.

Your first map probably will be changed several times but it is much easier to change on paper than in the garden. When the plan which suits the family best has been decided upon, copy it neatly and refer to it often.

No one thing is responsible for the success of your garden. Your knowledge, your ability to "learn by doing," and your natural or acquired ability to work with nature, all of these combined will determine the amount and quality of the family food supply produced. It's fun to make your garden the best garden in the community.—*Nadine Thompson, President NJVGA, Lakewood, Colo.*

NJVGA Contest Information

NJVGA headquarters at Amherst, Mass., Grant Snyder, adult advisor, announce that the 1955 Production & Marketing Contest is open to any boy and girl between the ages of 12 and 22. The annual contest stresses good growing and marketing practices of garden projects maintained by the boys and girls themselves.

Judging and Demonstration Contests are open to all boys and girls at least 14 and not over 21. The Judging, Grading, and Identification Contest involves a knowledge of variety types, the identification of garden insects, diseases, weeds, nutrient deficiencies, grade defects and standards. The Demonstration Contest is divided into four subject sections—production, soil fertility, marketing and use of horticultural crops.

Additional detailed information can be obtained from state chairmen or by writing Prof. Grant B. Snyder, Head, Department of Olericulture, University of Massachusetts, French Hall, Amherst, Mass.

A bi-monthly page for the younger generation of vegetable growers and their national organization, the National Junior Vegetable Growers Association.

Winners in Production and Marketing contest in 1954 as announced at NJVGA convention in Cincinnati, Ohio, were, from left: John J. Ruszkiewicz, Gwendoline Fair, Jack Armstrong, and Betty Lou King. Jack is national winner; others are regional.

Junior Growers On National Plant Food Institute Convention Program

Tommy Dotson and Joe Strickland of Summersville, W. Va., with their coach John Curry, have been invited to appear on the program of the 1955 preliminary convention of the National Plant Food Institute which will take place at The Greenbrier, White Sulphur Springs, W. Va. This convention will precede the official consolidation of the American Plant Food Council and the National Fertilizer Association effective July 1 this year.

The Youth Panel will be presented on Tuesday morning, June 14. In addition to the West Virginia NJVGA'ers, other participants will include William D. Gunter of Live Oak, Fla., president of the FFA, and Lamar Ratcliff of Baldwyn, Miss., a 14-year-old 4-H Club boy. The attendance will be between 1,000 and 1,200 representing practically all of the fertilizer companies in the U. S. Paul Truitt has advised that the youth panel is their first attempt to present to their membership the work of the more important youth organizations which the Institute is supporting.

NJVGA INDUSTRIAL ADVISORY COMMITTEE FOR 1955

David Burpee, President, W. Atlee Burpee Co., Hunting Park Ave. at 18th St., Philadelphia 32, Penna.

C. W. Kitchen, Executive Vice-President, United Fresh Fruit and Vegetable Association, 777 14th St. N.W., Washington 5, D. C.

Max W. Foresman, Director of Public Relations, Spencer Chemical Company, 610 Dwight Bldg., Kansas City 6, Mo.

Phil Alampi, WRCA-WRCA-TV, Farm and Garden Director, 30 Rockefeller Plaza, New York 20, N. Y.

Clarke I. Wilson, Sales Manager, Ariens Co., 109 Calumet St., Brillion, Wisc.

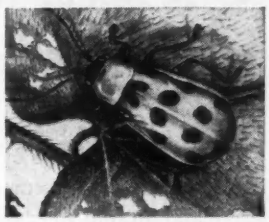
D. Murray Franklin, Publisher, Garden Supply Merchandiser, 1901 St. Paul St., Baltimore 18, Md.

Robert A. Cooper, Executive Secretary, Produce Packaging Assoc., 500 Fifth Ave., New York 36, N. Y.

Miss Margaret Herbst, Secretary, 101 Park Avenue, New York 17, N. Y.

Check these extra advantages of Du Pont Marlate®
METHOXYCHLOR INSECTICIDE
for insect control

ON CUCURBITS—"Marlate" stops striped and spotted cucumber beetles *without* injuring these sensitive plants . . . even in seedling stages. It's tops for squash vine borer and pickleworm, too.

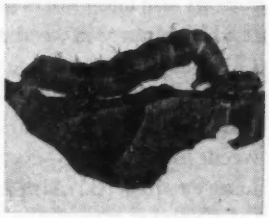


CUCUMBER BEETLE

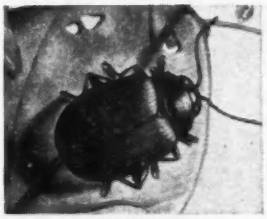
MEXICAN BEAN BEETLE

ON BEANS—"Marlate" gives outstanding residual control of Mexican bean beetle, leafhopper and bean leaf beetle. "Marlate" can be used up to a week before harvest without hazard to pickers or consumers.

ON COLE CROPS—"Marlate" gives excellent control of flea beetles, worms and loopers. It is ideal for post-heading sprays because it can be used late in the season without presenting residue hazards.



CABBAGE LOOPER



FLEA BEETLE

ON ASPARAGUS, TOMATOES, POTATOES—"Marlate" stops flea beetle on tender tomato transplants without injury; controls damaging asparagus beetle; has given almost 100% control of DDT-resistant Colorado potato beetle and other potato insects.

For low-cost weed control in asparagus—Du Pont Karmex® W Herbicide

1 to 4 lbs. per acre of Karmex stops annual weeds and grasses for 6 weeks or more. It's an easy-to-use wettable powder, ready to mix with water. Spray before emergence and after harvest. Won't harm equipment. Consult local authority on dosages, timing.

Killing efficiency, residual control and safety to plants and operator make Du Pont "Marlate" your best insecticide buy for these and other vegetable crops . . . see your dealer for "Marlate" today!

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Methoxychlor Insecticide

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Better Things for Better Living . . . through Chemistry

NEW

PROVED WEED KILLER

for cantaloupe growers

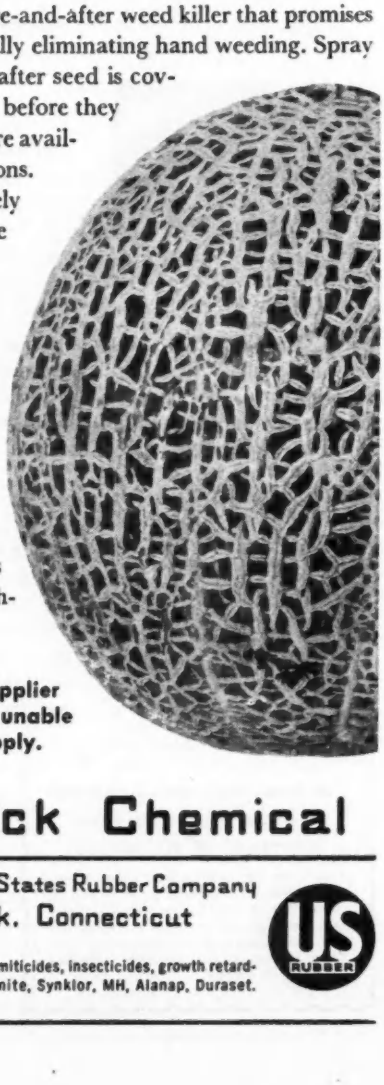
AMAZING

ALANAP®-I

saves $35 to $150 per acre

Alanap-1, Naugatuck's new before-and-after weed killer that promises you great new savings by practically eliminating hand weeding. Spray Alanap-1 now (pre-emergence) after seed is covered, and annual weeds are killed before they can appear. Specific instructions are available for post-emergence applications.

Country-wide usage conclusively proves: (1) Alanap-1 can save growers of cantaloupes, watermelons and cucumbers from $35 to $150 per acre in weeding costs. (2) One pre-emergence application of Alanap-1 gives excellent control of a wide variety of weeds for 3-8 weeks—even after heavy rains. (3) Alanap-1 is safe on recommended crops, non-hazardous to humans and animals and is easy to apply. This season you can't afford to be without Alanap-1.



Order Alanap-1 from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.

Naugatuck Chemical

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producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

US RUBBER

WORKSHOP CONFERENCE

THE third annual workshop conference of the Vegetable Growers Association of America brought out some major vegetable problems to be faced in 1955. Held in Washington, D. C., it was attended by grower-delegates from major producing areas, USDA representatives, marketing experts, and members of Congress. The meetings put in a good word for vegetable producers and familiarized lawmakers with vegetable growers' problems.

Such vexing and difficult problems as diverted acres, trip leasing, vegetable imports, and highway developments were discussed by experts. Marketing and promotion, and research in production and utilization, came in for a full share of comment.

Named chairman of the VGAA legislative committee for the coming year was Walter F. McCaleb, Jr., Belle Haven, Va. He will spearhead the drive to make sure vegetable growers have a strong voice in coming legislative developments.

ROOT-DIPPING BENEFITS TOMATO TRANSPLANTS

ROOT-DIPPING tomato plants before transplanting in sand produces considerable improvement in root and top growth, Michael Szolnik, of the New York State Experiment Station, Geneva, has found.

Greenhouse plants grown in soil were used for the experiment. The somewhat sparse roots were washed free of soil and immersed in various test chemical solutions for 90 seconds, and immediately potted in white sand. All groups, including the untreated check plants, received the same daily application of water and a complete nutrient solution.

Plants dipped in Orthocide 2-100 showed the best results, followed by Dithane Z-78 at 1½-100. The Orthocide-dipped plants weighed about twice as much as the untreated check plants and were more than an inch taller a month later.

Tests are now in progress using soil instead of sand for the potting material.

As of now, Szolnik believes that growers may find root-dip treatment beneficial in transplant crops. The fungicide may protect the plants against certain root pathogens, and induced rooting may stimulate them to a better start in the field. The treatment can appreciably reduce losses of transplanted stock, he feels.

Are you planning a roadside market? Working drawings for an attractive, easy-to-build stand are available for $1.50 from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a three-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

CALHOUN SWEET WATERMELON

What can you tell me about the new Calhoun Sweet watermelon?—*Florida.*

A new wilt-resistant variety, the Calhoun Sweet was developed in Louisiana by Lynn Hawthorne and Chester Taylor of the Louisiana Experiment Station. It has had an exceptional production record. Since it has a thin rind, it should be planted for local markets only. Seed is available for growing this year.

HYDRATED LIME VS. GROUND LIMESTONE

What is the advantage of hydrated lime over ground limestone?—*Iowa.*

Hydrated lime acts more quickly but is more expensive than limestone. A finely ground limestone will be effective in 75 to 90 days following application while results from hydrated lime may be observed in 30 to 40 days.

QUACK GRASS CONTROL

I would like some information on the use of TCA for quack grass control. What time of year should it be used? How soon after application can the ground be planted? Is it harmful to strawberries, raspberries, corn, or vegetables of any kind? Is there any product more effective than TCA for quack grass control?—*Washington.*

According to John Davidson of the Dow Chemical Co., Sodium TCA is effective as a grass control chemical when applied either as a foliage spray or on the soil for absorption through the roots. When used on established quack grass sod without cultivation, 75 to 100 pounds per acre is necessary. When used immediately after plowing, 40 to 50 pounds is sufficient. Moderate soil moisture is necessary to get best action of Sodium TCA. Heavy rainfall immediately after application on well-drained soils may leach the chemical below the root area of the quack grass plants, necessitating retreatment. Applications of Sodium TCA on hot dry soils without sufficient moisture following the treatment may also reduce the effectiveness of the material. In areas where the annual rainfall is 25 to 30 inches, Sodium TCA usually does not persist in soil for more than 3 or 4 months. In drier areas it may persist in soil for longer periods. By making the TCA application in June or July it is generally safe to plant most crops the following spring.

Dow feels that dalapon 85 per cent sodium salt holds more promise for quack grass than TCA. It is effective both as a foliar spray and as a soil application at lower rates than TCA. Experience indicates that residues toxic to plants do not persist in the soil as long as TCA. Fall preplanting applications, where winter rainfall occurs, should remove all residue in time for spring planting. This would allow the use of the field for other cropping prior to quack grass control in preparation for the small fruit crop to be planted in the spring.

Two other chemicals being suggested for quack grass control are maleic hydrazide and CIPC. Results from the former have been rather erratic although it has the advantage of no harmful residue being left in the soil. Concentrations of CIPC necessary for quack grass control might leave residues which could prove toxic to certain crops grown on treated soil within 6 months.

FAST, ECONOMICAL CROP PROTECTION

New Aircrop Sprayer Attachment in action. Note 60' swath and even spray distribution.

spray **20** **ROWS** *with each pass . . . or* **6**

Trailer-mounted John Bean sprayer with 6-row boom does a fast, thorough spray job.

whatever your needs

YOU'LL BE AHEAD WITH A JOHN BEAN SPRAYER

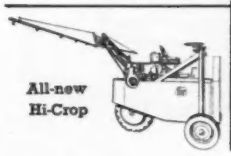
Considering air-type vs. boom spraying? Need a high clearance sprayer . . . or a trailer-mounted unit adjustable for varying crop heights and row widths? Want PTO or engine power? Or are you simply looking for a pump, boom or air-type conversion unit to add to present equipment?

Whatever your needs, there's a John Bean unit that's made to do the job right . . . by the people who've been the "leaders in sprayers" since 1883.

Remember . . . the heart of a sprayer is the pump. There's none better made than the John Bean Royal and Royalette . . . the pumps with the diamond-honed, sapphite cylinders that handle the most abrasive mixtures and *"last a lifetime!*

12-row Royal "35"

20-row Hydraulic



All-new Hi-Crop

32 ft. Right-Way

Write for the new catalog of John Bean Row-Crop Sprayers

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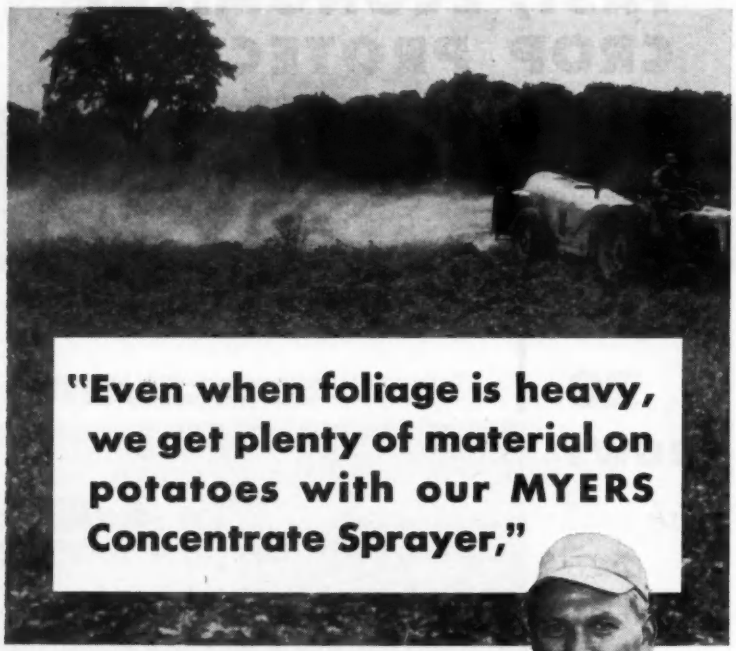
Division of Food Machinery and Chemical Corporation



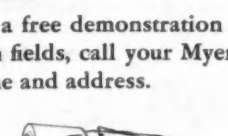
says **CLARENCE KEENER**
Manheim, Pa.

Leading growers like Clarence Keener use the Myers Concentrate Sprayer on potatoes because it delivers tremendous air volume and velocity. This kind of air blast is necessary to push spray mist through heavy foliage and deposit an effective quantity of blight control material.

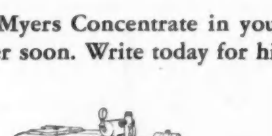
Even when ground is uneven or a slight wind is blowing, coverage is good because Keener can adjust the spray pattern without leaving the tractor seat.

The Myers Concentrate sprayer offers other advantages over dilute boom spraying, too. Fewer field tracks are needed because the Concentrate Sprayer in one round trip can cover a 40-foot swath on each side of its tracks. Less water is used because concentrate mixtures require just one-fourth the water dilute mixtures call for. And with no awkward boom to worry about, the Myers Concentrate machine is easier to handle.

For a free demonstration of the Myers Concentrate in your own fields, call your Myers dealer soon. Write today for his name and address.



Myers Concentrate Field Crop Sprayer



General-Purpose Sprayer

Myers POWER SPRAYERS
WATER SYSTEMS AND WATER SOFTENERS

The F. E. Myers & Bro. Co.
Dept. AV-4, Ashland, Ohio

MORE SPUDS PER ACRE

Use this 8-point guide in adjusting your planter and get 150 more bushels per acre

MOST potato growers nowadays apply their commercial fertilizer in bands at planting time with a potato planter. It is important, therefore, to keep the potato planter in top operating condition. A properly adjusted planter can help the grower get the most from his fertilizer dollar and prevent losses of up to 150 bushels of potatoes per acre, according to Dr. E. L. Nixon, as reported in the *Guidepost,* official publication of Pennsylvania Co-operative Potato Growers, Inc.

A properly adjusted planter will place the two bands of fertilizer a little below, and 2 inches away from each side of the seed piece. The accompanying diagram shows 8 points to check in adjusting your planter.

1. The point of attachment of the opening gang. Lengthening or shortening this attachment, or raising or lowering the tongue, or both, determines the depth of applying the fertilizer, and to a large extent the depth of planting.

2. The disc. Is it worn? The size of the disc is also a factor in depth of fertilizer application, and of planting.

3. The fertilizer boots. These are responsible for placing the fertilizer exactly at the bottom of the disc impression. These boots are easily bent and twisted. Make sure they are not out of line.

4. The bands of fertilizer. If 1, 2, and 3 are not properly adjusted, the fertilizer bands will not be placed "on the level with, or slightly below the seed piece" where they belong. This could knock off *50 bushels of potatoes per acre.*

5. The planting shoe. It must run exactly equi-distant between the fertilizer bands. Growers have a tendency to run this shoe deeper than the opening discs go. The latter determine the depth of the fertilizer. The planting shoe determines the

Plant potato seed pieces deep and cover shallow. Be sure your planter is placing the fertilizer a little below and on each side of seed piece.

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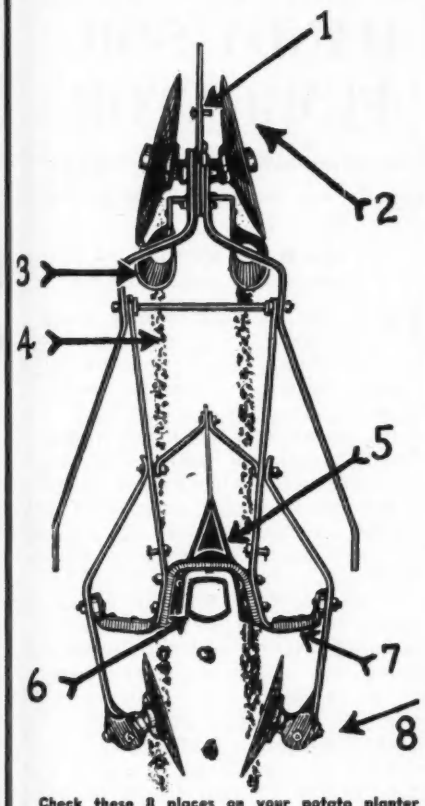
depth of the seed piece. The planting shoe wears off fast—watch it, or plantings will be too shallow. It occasionally gets bent or twisted, deflecting the seed pieces onto one of the fertilizer bands. *Another 50 bushels might be lost here.*

6. The Seed boot. This is easily bent, battered at the bottom, or shoved full of soil in backing, deflecting the seed pieces.

7. An important place where the covering discs can be adjusted by spreading or closing the gangs. The



Check these 8 places on your potato planter to make sure they are properly adjusted.

covering discs should not be set to dig up the bands of fertilizer and pile them on top of the seed pieces. *You could lose another 50 bushels here!*

8. The place of changing the angle of the disc. Set this angle in relation to the adjustment made at 7. This angle determines how deeply or how shallowly the seed is covered.

An excellent way of checking the job your planter is doing is to open up a section of newly-planted row. Remember: "The bands of fertilizer should be level with, or slightly below, the seed pieces." THE END

Now at long last you can have that greenhouse you've been wanting. For $250 you can build an 18x84-foot plastic greenhouse which would cost you $4,000 if constructed of glass. Send 25 cents in coin or stamps to AMERICAN VEGETABLE GROWER, Willoughby, Ohio, for working drawings prepared by the University of Kentucky, together with descriptive leaflet.

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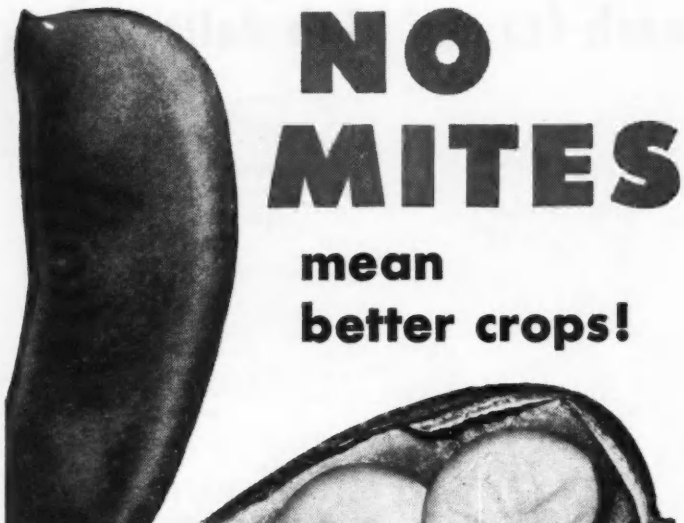

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producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

Fumigator is attached to tractor cultivator bars and can be raised or lowered as desired.

HANDY SOIL FUMIGATOR

Tractor-mounted power injector speeds up fumigant application

By R. S. MULLIN
Virginia Truck Experiment Station

DURING the past several years attention of vegetable growers has increasingly been called to the damage to crops caused by nematodes.

In experiments at the Virginia Truck Experiment Station, Norfolk, nematode-killing chemicals were injected into the soil in an attempt to control sweetpotato cracking. Definite reductions in cracking have been obtained in treated areas in each of the four years of experiments, 1950 through 1953, showing nematodes to be, at least in some cases, the major cause of sweetpotato cracking. In 1953, the most effective year, soil fumigation of nematode-infested land reduced the amount of sweetpotato cracking to one-fifteenth of that found in untreated areas.

During the first years of the experiments, application of the soil fumigant was by means of a hand applicator. Later, a tractor-mounted fumigator was built and the treatments applied with it.

In making the soil fumigator it was desired to have it as a single unit to facilitate mounting on and taking off a tractor. With this in mind the unit was built on and around a 6-foot steel bar, the bar to be clamped to the rear cultivator bars of a Farmall Super A tractor. To this steel bar were welded strips of angle iron to carry the fumigant barrel on the back of the unit, the angle irons extending forward to hook under the tractor cultivator bars, thus offsetting the weight of the filled barrel.

Across the pieces of angle iron was welded the pipe and "T" joints as a take-off for the 6 hoses going

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21	½" hose c
25'	Neoprene
1	¾"x½" bu malleable
2	¼" caps (
7	¼" tees (
1	½"x6" nip
1	½" cross
13	¼"x3" nip one end)
6	3/16" outl
2	½" gate
3	½"x1½"
4'	⅜" I.D. c
1'	¼" O.D.
2	½" to ¾"
6	1¾" cultiv
6	Cultivator
6	Cultivator
10	Pieces ½"x
1	Piece ½"x
10	1½"x⅛" a
1	Steel bar
4	6"x⅜" bol
12	4"x½" bol
6	4"x⅜" bol
4	3'x½" rod
1	Barrel
6	6'x2" used
	Welding
	Grand T
	Labor asse

to the applicator tips, and for the intake from the power unit. On top of the barrel were located the cut-off valves, one to the pipe rig just mentioned (with a strainer in between) and one as a by-pass. A pressure gauge was located between the two valves. Cultivator shanks with shoes were fastened securely to the steel bar by clamps and heavy iron front pieces and bolts. The outlet pipes were welded to the backs of the cultivator shanks. Attachment of the entire unit to the cultivator bars was by heavy steel bars and bolts.

Pressure for injecting the fumigant was supplied by a power take-off gear pump mounted on a piece of "L"-shaped iron which was fastened to the tractor by the bolts just above the power take-off.

The entire unit can be mounted on the tractor, ready for use, by tightening 8 bolts. Being attached to the cultivator bars it can be raised or lowered as desired. In order to somewhat seal in the fumigant at application, a plank or pipe should be dragged behind the unit to smooth over the soil. A strip 6 feet wide is treated by the unit with the 6 applicator nozzles placed 1 foot apart. The fumigant is released in the soil at a depth of 6 to 7 inches. It was used in 1953 and 1954 and proved very satisfactory, though a narrower cultivator shoe than the 1¾-inch listed here would be better.

The parts used in making the unit are listed below. The accompanying prices will probably vary somewhat with the locality.

LIST OF PARTS FOR MAKING SOIL FUMIGATION UNIT

Quantity	Part	Unit Cost	Total Price
6	Adaptors for flow regulators	$ .20	$ 1.20
6	Adaptors for flow regulators	.65	3.90
1	Line strainer		4.50
1	Line screen		1.20
6	Disc, Stainless steel	.50	3.00
6	Tee jet strainers	.50	3.00
6	Connectors ½" x ½"	.40	2.40
6	Connectors ½" x ¾"	.40	2.40
1	Pressure gauge		3.00
1	F 5 brass pump		25.00
1	PTO adaptor ¾" x 1⅜"		2.50
21	½" hose clamps	.25	5.25
25'	Neoprene hose	.35	8.75
1	¾"x½" bushing (black, malleable)		.15
2	¼" caps (black, malleable)	.07	.14
7	¼" tees (black, malleable)	.22	1.54
1	½"x6" nipple (black)		.18
1	½" cross (black)		.53
13	¼"x3" nipples (black—threaded one end)	.10	1.30
6	3/16" outlet pipes	1.25	7.50
2	½" gate valves	1.75	3.50
3	½"x1½" nipples	.15	.45
4'	⅜" I.D. copper tubing	.18	.72
1'	¼" O.D. copper tubing		.10
2	½" to ¾" bushings	.20	.40
6	1¾" cultivator teeth	.50	3.00
6	Cultivator shanks	2.00	12.00
6	Cultivator shank clamps	.75	4.50
10	Pieces ½"x2"x3" flat bar iron	.30	3.00
1	Piece ½"x6"x12" flat bar iron		1.00
10	1½"x⅛" angle iron		6.00
1	Steel bar 6'x1¼"x1¼"		4.00
4	6"x⅜" bolts and nuts	.30	1.20
12	4"x½" bolts and nuts	.10	1.20
6	4"x⅜" bolts and nuts	.10	.60
4	3'x½" rods and nuts	.30	1.20
1	Barrel		5.00
6	6'x2" used pipe (used as drag)		1.00
	Welding		15.00
	Grand Total		$141.31

Labor assembling 2-3 days.

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"Stainless-Steel Streamliner"
The World's Most Modern Concentrate Sprayer

200 Gallon Stainless-Steel Tank

Total Weight Less Than One Ton

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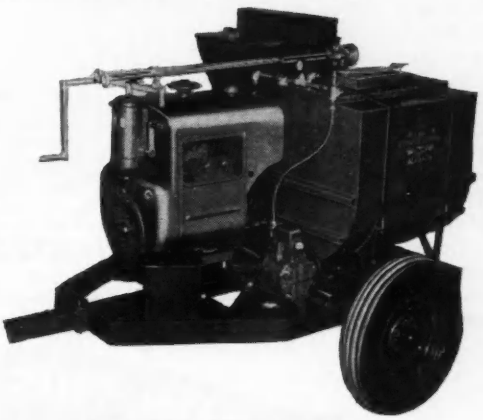

50 or 100 Gal. Tank
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For Orchard or Row Crop Spraying and Dusting

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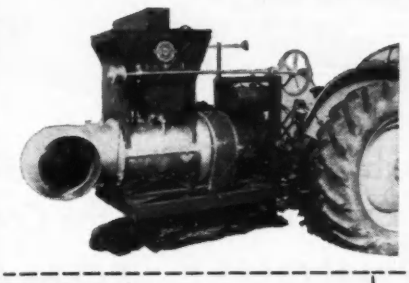

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Gentlemen—Please send me full information on the Buffalo Turbine Sprayer-Duster.

I have approximately.....acres

in fruit consisting mostly of.....

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Signed .....

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☐ Please arrange a demonstration.

SPECIFIC GRAVITY

Makes the Difference in Spuds

By M. W. MEADOWS
Cornell University

COMMERCIAL fertilizers have profoundly affected the potato industry of the United States. They replenish soils depleted of the elements necessary for growth, and indirectly make possible tremendous yield increases attributed to improved insecticides, fungicides, varieties, water management practices, etc.

Average acreage potato yields for the U.S. broke the 100-bushel mark in 1922, the 200-bushel barrier in 1948, with a present-day average hovering around 250 bushels. Major producing sections such as California, Maine, Idaho, and Long Island are consistently bettering the 300-mark, with Washington maintaining a 400-bushel plus average since 1952. It is not at all improbable that this rising trend in acreage yield will continue since it is easy to find growers with yields of 500 bushels and occasionally even 1,000.

What bearing does this have on quality? First we must point out the significance of yield as it affects price to the consumer. Potatoes are traditionally a cheap food common to the tables of rich and poor alike. How has this position been maintained? By economical production, of which yield is a necessary part.

Quality has increased to the extent that, through many factors of improved cultural methods, the grower has obtained more bushels of marketable potatoes per acre. The housewife can buy this cheap nutritious food any day or month of the year in any quantity—graded, brushed, washed, waxed, or processed.

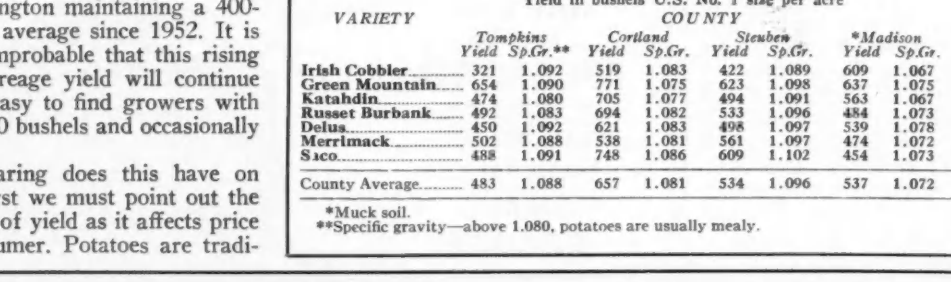
So far so good, but unfortunately the poor housewife has no guarantee what the raw product is good for. Typical complaints are: "When boiled, they cooked to pieces."; "The baked potatoes were as soggy as a wet mop."; "Our mashed potatoes were about the color of snow on a cinder dump."

The potato industry has been sadly negligent in correcting these difficulties. A potato that cooks to pieces when boiled may have been boiled too fast, but more likely, it was a mealy or "high specific gravity" potato and would have been excellent if baked. The baked potato that was soggy should have been boiled since it was a low specific gravity or non-mealy potato. A simple, inexpensive device measures specific gravity of potatoes and will give an indication what the potatoes should be used for. Don't keep it a secret, mark it on the bag so that the housewife will know!

NEW YORK POTATO VARIETY TRIALS—1954
Yield in bushels U.S. No. 1 size per acre

VARIETY	COUNTY									
	Tompkins		Cortland		Steuben		*Madison		Variety average	
	Yield	Sp.Gr.**	Yield	Sp.Gr.	Yield	Sp.Gr.	Yield	Sp.Gr.	Yield	Sp.Gr.
Irish Cobbler	321	1.092	519	1.083	422	1.089	609	1.067	468	1.083
Green Mountain	654	1.090	771	1.075	623	1.098	637	1.075	671	1.084
Katahdin	474	1.080	705	1.077	494	1.091	563	1.067	559	1.079
Russet Burbank	492	1.083	694	1.082	533	1.096	484	1.073	551	1.083
Delus	450	1.092	621	1.083	498	1.097	539	1.078	527	1.087
Merrimack	502	1.088	538	1.081	561	1.097	474	1.072	519	1.084
Saco	488	1.091	748	1.086	609	1.102	454	1.073	575	1.088
County Average	483	1.088	657	1.081	534	1.096	537	1.072		

*Muck soil.
**Specific gravity—above 1.080, potatoes are usually mealy.



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For information write or wire

THE OHIO BOXBOARD CO.
RITTMAN, OHIO

Idaho has very successfully attacked this problem by growing the Russet Burbank variety that, when grown in Idaho, generally produces an excellent baking potato.

Fertilizer Affects Gravity

Heavy fertilizer usage has generally resulted in a lowering of the specific gravity of potatoes, quite often giving a difference of mealy versus soggy potatoes; the mealy potatoes coming from soils of low fertility.

Should we then recommend that a grower reduce fertilizer applications, take a proportional cut in yield, and demand a proportionately higher price for his product? Of course not.

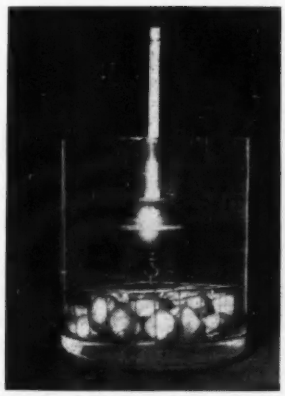
A more practical approach would be through the use of varieties. First of all, the grower must know what his trade wants—a mealy or non-mealy potato. **Then, by trial, find** which variety will give the desired result in his particular locality.

The accompanying table gives the results of variety trials in New York state for 1954. From these results it can be seen how specific gravity and yield of a few varieties differs from one location to another.

It is of especial interest that the new varieties, Delus, Merrimack, and Saco, have produced higher dry matter content than Irish Cobbler, Green Mountain, and Russet Burbank. High specific gravity potatoes of superior cultural characteristics are in the making. Where the old varieties are susceptible to many diseases, particularly late blight, the new ones carry a high degree of resistance.

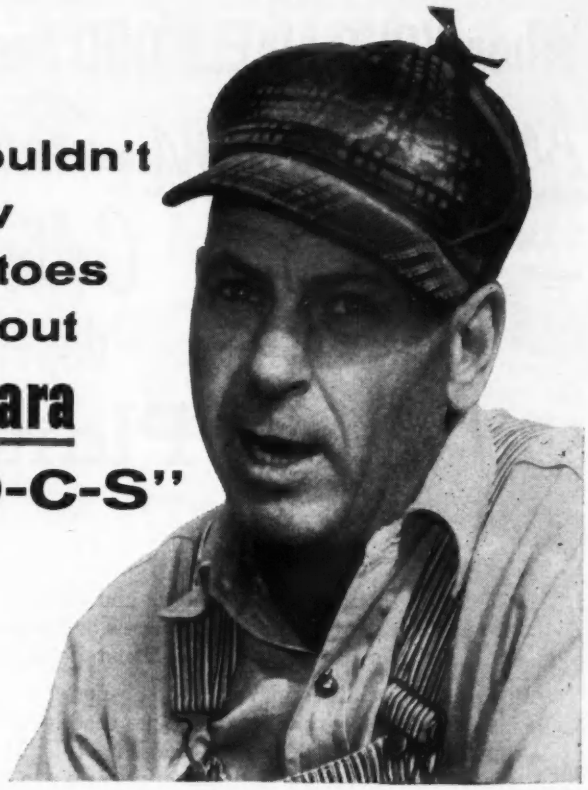
Long Island grows a very nice Green Mountain with excellent baking qualities, but acreage is giving way to Katahdin. Why? Perhaps most housewives prefer a non-mealy potato, or possibly the superior appearance

(*Continued on page* 30)



This potato hydrometer measures specific gravity. Eight pounds of potatoes are placed in basket and lowered into water. Specific gravity is read directly from a scale at water level. Hydrometer is distributed by National Potato Chip Institute, 1360 Hanna Bldg., Cleveland 15, Ohio.

"I Wouldn't Grow Potatoes Without Niagara C-O-C-S"



Discourages Blight—
Encourages Growth

Experienced growers say there is nothing like Niagara C-O-C-S to bring in a heavy crop of sound, good keeping potatoes. It effectively prevents blights and actually stimulates the natural growth of potato plant foliage.*

C-O-C-S blankets the foliage with tiny toxic copper particles that stick tight and resist wash-off. A little goes a long way, either mixed as a spray or when used as a dust. It's the most economical protection and growth aid you can buy.

C-O-C-S IS SAFE AND HIGHLY EFFECTIVE FOR OTHER CROPS

Niagara C-O-C-S is an almost universal fungicide for the market grower. Use it to ward off diseases on such crops as tomatoes, cucumbers, melons, peppers, squash, lima beans and celery. Just dust or spray for safe, long lasting protection.

Ask the Niagara field man for specific recommendations on application rates and timing.

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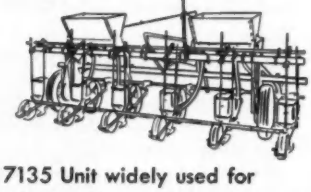
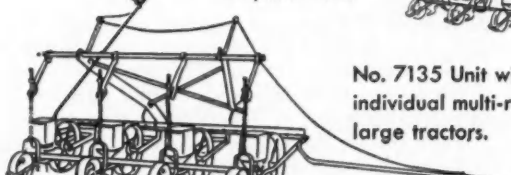
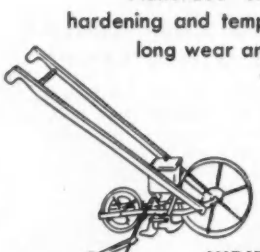




No. 7135 Unit widely used for individual multi-row adaptations on large tractors.

"Planetized" steels with exclusive hardening and tempering process for long wear and super toughness without brittleness.



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COLD DAMAGE

AT the time of going to press reports from the important plant growing and vegetable producing states of Georgia, Mississippi, Texas, and North Carolina indicate the following damage to plants and crops as a result of the record-shattering cold wave in late March:

GEORGIA—Not including loss due to delay of crop, an estimate of the loss to growers in direct cost of seed, plants, replanting, etc., is $500,000. Loss in tomato plant production is estimated at 25 per cent of total amount of tomatoes usually planted. Cucumbers, sweet corn, melons, beans, were hit most severely. Most crops will be replanted.—*F. E. Johnstone, Jr., Dept. of Hort., Athens.*

MISSISSIPPI—Estimated damage to cabbage is 50 per cent. Several hundred acres of turnips and mustard were lost. There has been small loss of newly planted tomatoes, snap beans, peppers. -Considerable replanting of early watermelons is already taking place.—*Chesley Hines, Extension Horticulturist, Starkville.*

TEXAS—In the east Texas area 40 per cent of the tomato plants in plant beds were killed; early turnip and mustard were destroyed; and cabbage was damaged by 50 per cent. Many vegetable crops have not yet been planted. Peaches and plums were wiped out; blackberries were damaged 75 per cent and strawberries 50 per cent.—*J. F. Rosborough, Tyler.*

NORTH CAROLINA—In the Wilmington area severe damage was caused to beets, carrots and radish, and slight damage to lettuce. It is too early to tell the extent of damage to the coastal area cabbage. Early potatoes in a few counties were killed to the ground but this will not affect yield. A few of the early beans and cucumbers were killed but growers expect they will have plenty time to replant. Total loss is estimated at $250,000.—*H. M. Covington, Raleigh.*

STATE NEWS

(*Continued from page* 17)

Experiment Station's Florida test show. This is the highest percentage in the history of the test. Such seed is classed as foundation grade, and is suitable for the production of certified seed in 1955.

There were 574 samples representing 7,133 acres of certified seed in the test. Samples of 14 different varieties were included in the test which was actually a sample crop planted in southern Florida with last fall's seed potatoes.

Holding a bag of onions from his king-sized crop is Michigan Onion King, Kenneth Trapp, of Beulah. He talks over his record yield of 1,193 bushels per acre with Dr. Robert Lucas, extension specialist in soils at Michigan State College, and secretary of the Michigan Onion Growers Association. Other growers with yields over 1,000 bushels per acre were Robert Stream, Grant; Omer Pohl, Albion; Danny Baldwin, Parma; Lacerne Dixon, Munith, and William Bolthouse, Sheridan.—*S. K. Ries, Ext. Hort. East Lansing.*

CALENDAR OF COMING MEETINGS AND EXHIBITS

Apr. 5—Market Garden meeting during Farm and Home Week, University of Maine, Orono.

June 19-22—Idaho Shippers Association annual summer meeting, Grand Teton Lodge, Moran-Jackson Hole, Wyo. Edd Moore, Exec. Sec'y-Mgr., Idaho Falls.

July 27-28—Pennsylvania Potato Growers, Inc., field days, Potato City.—James A. Hannah, Sec'y, 5235 N. Front St., Harrisburg.

Aug. 1-3—United Fresh Fruit and Vegetable Association, 7th annual Merchandising Conference, Conrad Hilton Hotel, Chicago. Assn. hdqtrs: 777 14th St., N.W., Washington 5, D.C.

Aug. 16-20—Centennial of Farm Mechanization, Michigan State College, East Lansing.—A. W. Farrell, Head Agr'l Engng. Dept., MSC, East Lansing.

Sept. 19-21—Texas Citrus and Vegetable Growers and Shippers, Inc., Shamrock Hotel, Houston. —Austin E. Anson, Exec. Mgr., 306 E. Jackson, Harlingen, Tex.

Oct. 4-6—Florida Fruit & Vegetable Association annual convention, Hotel Fontainebleau, Miami Beach.—Geo. Talbott, 29 S. Covit St., Orlando.

Oct. 9-11—Produce Packaging Association 1955 Convention and Exposition, Conrad Hilton Hotel, Chicago, Assn. hdqtrs: 500 Fifth Ave., New York 36, N.Y.

Nov. 1-3—Florida State Horticultural Society 67th annual meeting, Fort Harrison Hotel, Clearwater.—Ernest L. Spencer, Sec'y, Bradenton.

REDUCE TRANSPLANT WILT

RECENT experiments in the vegetable crops laboratory at Bradenton, Fla., with a synthetic latex material known as "WILT-PRUF" are showing interesting results in reducing water loss from tomato seedlings during the transplanting period. WILT-PRUF forms a transparent protective coating when applied to plant material. Similar observations have been made in trials with celery, onions, sweetpotatoes, strawberries, tobacco, and other transplanted vegetables and flowers. The material is manufactured by Nursery Specialty Products, Inc., Stebbins Road, Croton Falls, N.Y.

Four separate treatments were given to the tomato plants. The first group was accorded the usual method of pulling and wrapping in wet burlap. The tops of the plants in the second group were sprayed with 10 per cent Wilt-Pruf solution in water and permitted to dry before transplanting. The third group had the tops dipped after pulling and were then wrapped in wet burlap. In the final group plants were pulled and the entire plant dipped before wrapping.

The next day after a single watering it was found that treated plants were easier to handle than non-treated because of less wilting. Those with tops treated only were superior to the plants with both tops and roots dipped. The factor of less wilting is significant not only when plants are set by hand but also when setting machines are used.

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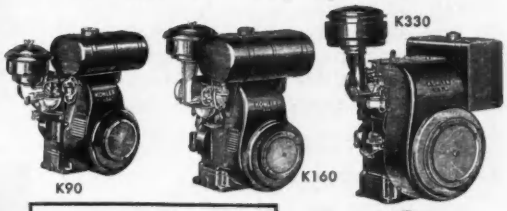
Garden tractor with 30" lawn mower attachment powered by a Kohler K90 engine and built by Bolens Product Div., Food Machinery and Chemical Corp., Port Washington, Wis.

A Kohler K90 Engine powers this Model "A" Farm-ette garden tractor, built by Tom Moore Tractor, Inc., Mantua, Ohio

This Bantam Rotavator, powered by a Kohler K90 Engine, is easy to handle, reliable. Built by Howard Rotavator Co., Inc., Arlington Heights, Ill.

Reliable, heavy duty service for power equipment



K90.....2.5 to 3.6 H.P.
K160....3.6 to 6.6 H.P.
K330.....7 to 12 H.P.
K660.....12 to 26 H.P.

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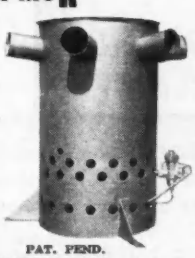

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Dealers Inquiries Are Invited

SPECIFIC GRAVITY

(*Continued from page 27*)

of Katahdin is the deciding factor. Be that as it may, until we have the answer, a grower of Katahdins is practically sure of a good crop. The Green Mountain grower sweats through a hot dry spell that may produce a crop of off-shape unsalable tubers, fights aphids day after day to prevent net necrosis caused by spread of leaf roll, prays that late blight doesn't break out, and ends up getting 10 cents per cwt less for Green Mountains on the New York market than for Katahdins.

Color of Boiled Potatoes

Back to the last and most vexing problem on potato quality—that of the flesh turning grayish-black after boiling or steaming. This abnormality is generally associated with potatoes that mature in seasons of short, cool, cloudy days. Here again fertilizers may indirectly be a contributing factor since well-fertilized potatoes tend to live longer if diseases, insects, and water relations are controlled.

The answer again is not necessarily one of reducing fertilizer rates, but one of planting early-maturing varieties and shortening the end of the season by planting early. A prime example of this is the Chippewa variety that very seldom gives a discolored cooked potato.

A very recent development regarding this problem reported by Dr. Ora Smith of Cornell University is the possible use of a sequestering agent as a foliage spray in the field or as a dip for the raw peeled potato. The sequestering agent shows promise in tying up, in the tuber, some of the compounds or elements (probably iron) responsible for after-cooking darkening.

Reports from taste panels almost without fail rate potatoes of high specific gravity highest in preference on the flavor scale. Could it be that flavor and dry matter content are inseparable, or is flavor more a sensation of feel, with the granular texture of a mealy potato being more pleasing?

In conclusion, it seems highly impractical to curtail fertilizer usage to the detriment of potato yields, especially when other avenues of satisfying consumer demands have not been fully explored. THE END

Boiled Katahdin potatoes. Those at left were grown in Steuben County, N.Y., had specific gravity of 1.090, too high for good boiling. Those at right were grown in Madison County, N.Y., had specific gravity of 1.070, right for boiling. Jars containing water that potatoes were boiled in show amount of sloughing. Note that specific gravity of same variety varies in different areas.

TC

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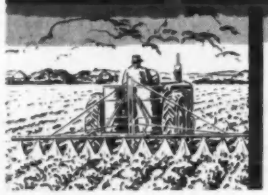

DUST MIXERS: Tennessee's NU-M, NU-Z, NU-IRON and TRI-BASIC Copper Sulfate are especially suited to be used in preparing nutritional sprays and dust mixtures.

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DISEASE CONTROL

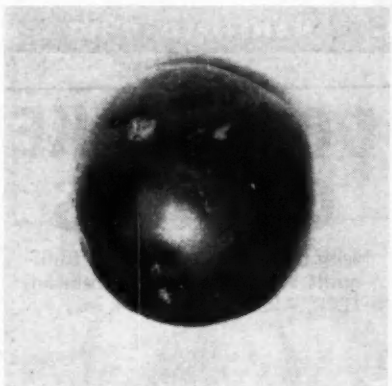
(*Continued from page* 16)

the stem end and in growth cracks.

The leaf blight usually becomes most serious as the fruit begins to ripen, especially if soil fertility is low. Spotted leaves turn yellow and fall off, which exposes the fruit to sunscald and premature, off-color ripening. This also shortens the harvest season.

The fungus may over-winter on seed and on old tomato and potato vines in the field. It spreads from the refuse to lower leaves and stems, then rapidly up the plant. Humid weather favors development and spread of early blight.

Anthracnose fruit spot causes round, sunken spots on the ripe fruit. The spots are usually ½ inch or less in diameter. They are light brown in color, often with rings of darker brown. Several spots may grow together to cause a soft rot. The fungus lives several years on old tomato refuse in the soil. Spores splash to the young fruits and infect them while they are green, but the spots do not develop until tomatoes ripen. The fungicide to control



Anthracnose of tomato causes circular sunken spots. Spray program and rotation prevent this.

anthracnose must be applied while fruits are young and green. Warm, humid weather favors development of anthracnose.

Leaves, stems, and fruits of tomatoes are affected by **late blight.** Leaf spots are greenish-black in color and irregular in shape. They may enlarge rapidly and destroy the whole leaf. Dark brown cankers develop on infected stems. Severely diseased plants look as if they had been frosted. Fruits may be attacked at any stage in their development. Affected areas are usually large, dark-colored, firm, and have a rough surface.

Gray leaf spot is a comparatively new disease of tomatoes. This disease may be more destructive than

(*Continued on page* 32)

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DISEASE CONTROL

(*Continued from page* 31)

early blight in that the fungus spreads rapidly to the tips of the vines causing almost total defoliation.

Septoria leaf spot also causes leaf spotting and defoliation. Small gray spots with tiny black specks in the center are the symptoms of this disease.

Control of tomato diseases can be accomplished by: 1) the use of inspected, disease-free plants; 2) proper rotation; and 3) a well-conducted spray program. A general spray program is as follows:

SPRAY PROGRAM FOR CONTROL OF TOMATO DISEASES

When to Spray	Fungicide Per 100 Gals.	Disease
When fruits of first cluster are half-grown (6 weeks after setting)	Ziram — 2 lbs. (suggested for areas where anthracnose has been a problem) OR Zineb (4 choices) 1) Dithane D-14, 2 qts. plus zinc sulfate, ¼ lb. 2) Parzate liquid, 2 qts. plus zinc sulfate, ¼ lb. 3) Dithane Z-78, 2 lbs. 4) Parzate, 2 lbs. OR Manzate, 2 lbs.	Early blight Anthracnose Early blight Gray leaf spot Late blight Anthracnose
8-10 days later	As above	As above
8-10 days later	As above	As above
8-10 days later	Zineb (as above) OR *Manzate, 2 lbs. OR **Fixed copper, 2 lbs. as metallic copper.	As above
8-10 days later	As above	As above

Additional applications are necessary until peak pickings have been harvested.

If late blight appears early in season, begin spraying at once and if the disease becomes epidemic, reduce interval between sprays.

*Manzate appears to be more effective against gray leaf spot (Stemphylium).

**Fixed copper or Bordeaux 6-3-100 should be used when late blight is present and in late applications. Spray at 10-day intervals until crop is harvested.

Cucurbit Disease Control—Downy mildew is usually the most serious disease of cantaloupes and cucumbers in the East. It may also attack watermelon, squash, and other cucurbits. The downy mildew fungus spreads northward each year. Fungicides prevent infection and spread; they do not cure leaves already infected.

Macrosporium leaf spot is controlled by the same sprays and dusts that control downy mildew.

SUGGESTED SPRAY OR DUST CALENDAR FOR CUCURBIT DISEASE CONTROL

Fungicide	As a Spray	As a Dust
Zineb (Dithane Z-78 or similar material	2 lbs. per 100 gals.	6%
Ziram (Zerlate or similar zinc dithiocarbamate)	2 lbs. per 100 gals.	10%
Fixed copper (tribasic or similar fixed copper)	2 lbs. as metallic copper per 100 gals.	5-8%

For downy mildew control, past experience in any given area should determine when the first application should be made. In Maryland this should be no later than the first

week of July. The important point is to have a coating of fungicide on the plants before the disease appears. Additional applications should be made once a week if weather is wet or if there are heavy dews. If weather is hot and dry, sprays may be spaced 10 days apart. Continue applications until peak of harvest has passed.

If **anthracnose** has caused losses on your farm in past years, spraying or dusting should be started as soon as the plants have 4 or 5 leaves and be repeated at 7- to 10-day intervals until the fruit is well formed. Otherwise, start as soon as first signs of anthracnose on the leaves or stems are noticed. In any case, begin spraying before mildew appears and when the fruit begins to size.

In field plots in Maryland in the last three years, the use of fungicide sprays has increased yields of cucumbers approximately 28, 40, and 68 per cent.

Bacterial Spot of Peppers—This bacterial disease often causes severe injury to sweet peppers. The gray or straw-colored spots, when numerous, cause the leaves to turn yellow and fall off. Blister-like spots disfigure the fruit. The bacteria are seed-borne and contaminated seed is probably a common source of first infection. Plants infected in seedbeds carry the disease to the field. Seed treatment and isolation of seedbeds are important. Canners in the East are considering growing their own plants.

Antibiotic sprays of streptomycin-terramycin (Agri-mycin) show great promise for control of bacterial spot of pepper and tomato in the field. Concentrations to use, time to spray, and whether the cost will be justified have to be worked out for each area.

Stewart's Disease or Wilt of Sweet Corn—Wilt is another bacterial disease that has caused considerable concern in central and eastern states. Losses to canners and to home gardeners in recent years have varied from a trace to over 50 per cent. In Maryland, wilt has occurred in the varieties Victory Golden, Golden Bantam, Golden Cross Bantam, and Iochief. The bacteria overwinter in adult flea beetles which feed on the corn soon after it comes above ground. Many corn flea beetles are killed in the winter if temperatures are low enough.

The use of resistant hybrids is probably the best control measure. In a few areas DDT sprays are being suggested for flea beetle control on susceptible varieties when the survival population is large. THE END

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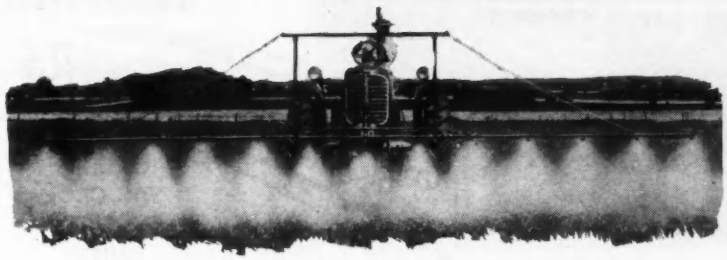

Pre-emergence chemical weed control for peas, beans, and sweet corn!

Many thousands of acres of peas, beans, and sweet corn have been successfully sprayed with SINOX PE. Pre-emergence applications can be most advantageously made at the time of planting, or they can be made just before crops emerge.

SINOX W is tops for post-emergence selective weed control when peas are 4 to 6 inches in height.

Ask your Dealer for complete SINOX literature, and consult local authorities for recommendations.

"Get started *right!* SINOX PE protection *now* means more profit *later!*"

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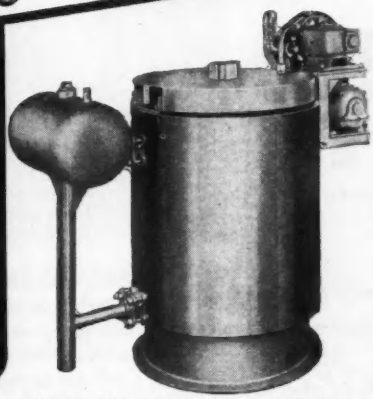
Why Buy Ice?

Make your own FLAKED ICE for as little as $1.50 to $2.00 per ton

BURGE FLAKED ICE MACHINE



A fully automatic Ice Machine—ice starts immediately. It's economical—you pay only for the ice you use. Occupies less space than the storage bin. Large capacity—3 to 12 tons per day. Installation is simple—can be connected to present refrigeration system or we can furnish complete with compressor, etc. Use coupon or write.

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HANDLE
THE CROP
FASTER
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On a single section of conveyor or on an engineered system, crates, lugs, boxes or baskets are handled at a saving of up to 70% of your handling cost. Gravity power is free. Ask for Folder No. FV-255 or request us to have our representative call on you. There is no obligation.

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AVAILABLE TERRITORY
For Manufacturers' Agents selling Growers, Packers and Produce Storage

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SALES OFFICES IN PRINCIPAL CITIES

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GRAND RAPIDS 4, MICH.

Typical application — dusting strawberries on large acreage operation near Watsonville, California.

BES·BLO
DUSTER
(200 lb. hopper)

★ "Driving Air" assures uniform coverage
★ Easily maneuvered, even on roughest ground
★ Time-saving, economical way to protect row crops
★ 2 Sizes: Super 28,000 c.f.m.
Big 15,000 c.f.m.
— one to fit your needs

BES·BLO blower unit also mounts quickly on your present Sprayer — converts it to efficient air stream operations — will spray widths up to 80 ft.

Ask Your Dealer or Write for Information

BESLER CORPORATION
4053 HARLAN STREET • EMERYVILLE, OAKLAND 8, CALIF. (Eastern Assembly: Davenport, Iowa)

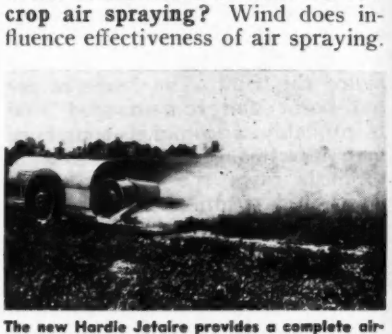
AIR SPRAYING

(*Continued from page* 13)

tory coverage of a wide range of vegetable crops with resultant insect and disease control directly comparable with conventional hydraulic boom spraying. These same users reported important savings in water hauling, time saved in not having to fold booms at the ends of the field or return to the water supply. With these advantages, savings of from 50 to 75 per cent in labor and 25 to 35 per cent in over-all costs are readily attainable.

Actual field testing of row crop air spraying was carried out in 1954 by college research workers with the following results: direct comparisons were made in the same fields and under the same conditions, with air spraying alongside conventional high-pressure boom spraying. Coverage was equally good, measured at definite times during the season by deposits of spray chemicals on upper and lower surfaces of leaves.

What is the effect of wind on row crop air spraying? Wind does influence effectiveness of air spraying.



The new Hardie Jetaire provides a complete air-blast unit for application of concentrate or dilute sprays to row crop.

Improved models of row crop air sprayers are built to take advantage of wind so that wide swaths may be sprayed effectively and number of trips through the field greatly reduced. Air spraying equipment comes in sizes to cover swath widths of from 40 to 60 feet, as compared with 24- to 36-foot swaths normally covered by medium to large row crop booms. With the larger equipment suited to 60-foot swaths traveling at a speed of 4 miles per hour, spraying is being done at the rate of 24 acres per hour. Not too long ago this would have been considered a good day's spraying for the average hydraulic sprayer. With these wider swaths less "wheel rows" are required and variations in row widths and types of plant growth are more easily accommodated with air equipment.

What should I look for in air row crop sprayers? To answer this question we must understand air volume

and air velocity. Experience has shown in air row crop spraying, the same as in orchard and shade tree spraying, that larger air volume at medium velocity is much more dependable and less affected by wind conditions than small volume air streams at high velocity.

Air spraying capacity is rated in terms of volume of air delivered per minute at a certain velocity. This is usually stated as, for instance, 30,000 cfm (cubic feet per minute) at 70 mph (miles per hour). Both volume and velocity must be known; the same as pump capacity and pressure are necessary in comparing spray pumps. It has been found for row crop work that medium velocity of air (70 to 100 mph) is desirable to avoid mechanical whipping of plants close to the sprayer.

While air capacity and velocity are prime requirements, the shape of the air outlet, the opportunity for deviation of the air to conform to uneven ground conditions, and the proper type and placement of nozzles in the air stream have much to do with uniform and economical coverage of the crops being sprayed.

In the period of transition from conventional high pressure spraying to air spraying, an air attachment to replace the boom on the row-crop sprayer is a very popular device. Remote controls for directing the air discharge and for applying spray chemicals to either or both sides of the air attachment are regularly carried up to the front of the sprayer in convenient reach of the tractor operator. With this type of equipment available, air spraying may well replace the high-gallonage, high-pressure type of spraying.

THE END

INSECT BATTLE

(*Continued from page* 15)

Many are highly specific in action and are thus harmless to parasites, predators, and pollinating insects. Most of the micro-organisms are not appreciably affected by insecticides and can, if necessary, be used in conjunction with chemical control measures.

Experiments are now underway to determine the possibility of using a virus disease which, in preliminary laboratory and field tests, has shown some promise against the cabbage looper on cabbage, broccolli, lettuce, and other vegetables.

And so the fight goes on. Although the vegetable grower must battle relentlessly to keep ahead of his insect enemies, research is continually producing new and better combat methods and materials. Some of them may even prove to be nature's own weapons. THE END

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HYBRID CANTALOUPE

NEW THIS YEAR

Earlier, Disease-Resistant, Bigger Yield

Supply limited — ¼-oz. Trial $2.25

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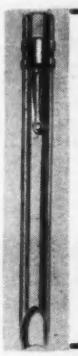

POCKET MICROSCOPE

3 BILLION DOLLAR

Vegetable (plant, vegetable and fruit) loss each year in plant and fruit production caused by insect and plant diseases.

HOW MUCH DO YOU LOSE?

YOU and YOUR HELPERS should have a pocket microscope ready for instant use in the study of scales, red spiders, mites, insects and fungi, in fields, beds or greenhouses.

ORDER NOW—BE SURE

Find your plant enemies.

A FINE GIFT FOR A FRIEND

20 power, $3.50 (3 for $ 9.00); one of 40 power, 4.50 (3 for 12.00); each $7.50

Postpaid. No C.O.D. Please

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Horticultural Consultant

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★ Made of special non-breakable aluminum alloy for structural strength and wear resistance. No deterioration in storage.

★ Automatic coupling and uncoupling from any angle or position.

★ Anti-surge valves of exclusive design.

★ Quick, easy 2-bolt attachment of coupler and hook to pipe.

★ Absolute elimination of all pipe damage in assembling and disassembling system—only a wrench is needed.

★ Fits any ground. For both large and small acreages.

★ Streamlined throughout to eliminate flow resistance.

★ No-leak, positive-seal gaskets.

★ Responsible, fully stocked, permanently established distributors.

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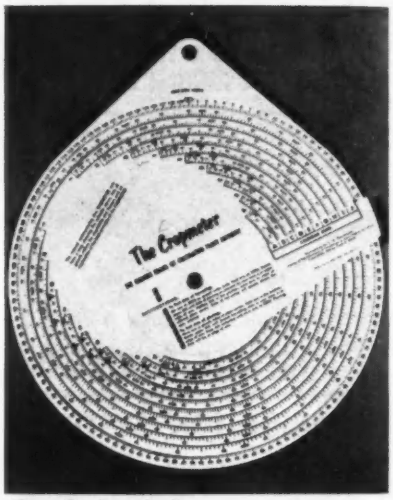
NEW FOR YOU

—to increase your profits



On Schedule

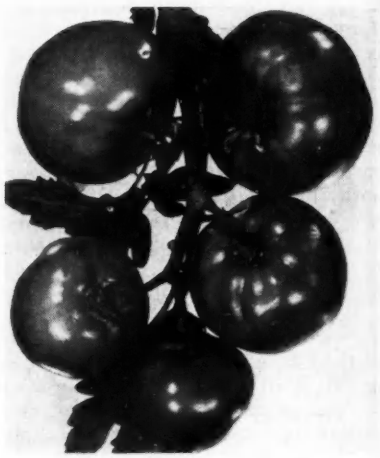
Many growers are growing their vegetables on schedule. It's easy to do with the newly developed, yet field-tested Cropmeter. Developed by Dr. C. W. Thornthwaite, director of the Johns Hopkins University Laboratory of Climatology, this new instrument relates climatic conditions to plant growth in a simple, easy manner. Merely by setting the dial at the date harvest is desired, the grower can quickly and easily find the correct time to plant any of the several hundred varieties listed in the Cropmeter manual. This new and profitable instrument can be purchased by sending only $2.00 to Floyd Slentz, Seabrook, New Jersey.

Bigger Better Tomatoes

Two growers—one in California and the other in Maryland—have written to me telling of the superior yields and quality they are getting with a new tomato variety. The new tomato is a vigorous grower and gives a much longer harvesting period, which means more profits for you. Known as Big Boy, it is sold only by the famous W. Atlee Burpee Co., Philadelphia 32, Pa. Why not write them today and please be sure to say you learned about their new variety through your AMERICAN VEGETABLE GROWER.

Liquid Nutrients

Many growers are praising liquid fertilizers. One which they all seem to agree has exceptional merit sells for about the same price as dry commercial fertilizers and is compounded in three different analyses, 8-8-8, 5-10-10, and 5-10-5. Half of the nitrogen is in long-lasting urea form, and the phosphorus content is quick-acting. It comes in 500 lb. drums containing about 50 gallons, or in bulk to fit your particular tank truck or drums. Any type of sprayer can apply this fertilizer. Write Tom Smith, Miller Chemical & Fertilizer Corp., 2226 N. Howard St., Baltimore 18, Md.



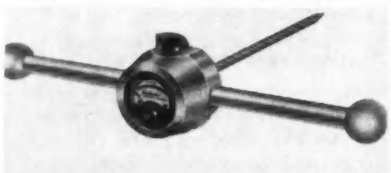
Palletize Multiwall Bags

Many growers, particularly potato men, would like to palletize their multiwall bag operation, but information on how to do it has been lacking. One of the best studies on the subject has just been completed, and it is based on extensive field and laboratory tests. The booklet is well illustrated and should be part of every profit-minded grower's required reading. You can get your copy by writing R. P. Kessler, Arkell & Smiths, Packaging Dept., Canajoharie, N. Y.

Save Your Back

Not long ago I was amazed to see a motorized wheelbarrow being controlled with finger tip action by a leading grower. Powered by a 2½ h.p. air-cooled motor, the unit handles 400 lbs. with ease. Throttle and clutch controls are mounted on the handles. The drive wheel is semi-pneumatic with a thick tractor tread, which makes operation over your vegetable acreage easy and sure. It is easily maneuvered, and won't capsize. Dumping or unloading is a finger tip operation. Write William Roulette, Jr. at the Worthington Mower Company, Stroudsburg, Pa.

Know When to Irrigate; Check Subsoil Moisture



In Connecticut two large growers are using to excellent advantage a new instrument known as the Aquaprobe. This compact, easily used measuring device tells them just when to irrigate and how much. Use of the Aquaprobe in 1954 saved these growers immense quantities of water and insured proper watering of their vegetables during the entire growing period. The Aquaprobe checks subsoil moisture in relation to the soil structure. Only 17½ inches over-all, the Aquaprobe weighs only 1 lb. 11 oz. and operates electrically through the medium of batteries. This accurate and worthwhile instrument sells for $32.60 FOB Connecticut. You can get full details by writing Daniel Pikosky, General Scientific Equipment Co., Hamden, Conn.

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Whether you have one tree or an orchard . . . a berry patch or a vineyard . . . make sure you get top yield. Anything less is "lost" money. So subscribe *today* while this offer is still in effect.

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Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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SOLVE YOUR VEGETABLE SPRAYING problems with one of our rebuilt and guaranteed John Bean high-pressure sprayers. We have 400- and 500-gallon tank outfits with 35-gallon pumps, both motor driven and power take-off. Wheel spacing and clearance will be converted to suit your needs. Attractively priced. MILLBURG GROWERS EXCHANGE, Benton Harbor, Michigan, southwestern Michigan's oldest and largest Bean dealer.

NEW IRON AGE TRANSPLANTER, one-row, with fertilizer attachment. Bargain. GIESZELMANN IRRIGATION EQUIPMENT, Collinsville, Illinois.

1—1953 MODEL 29-L SPEED SPRAYER; 1—Bean Speedaire; 1—Aqua-Jet Blower; 1—Bes-Blo; 1—Niagara Duster; a quantity of new wire-lined 2" Suction Hose, 14 ft. lengths with 2" pipe fittings. Bargain. 1—Niagara Grader; 1—Myers PTO Sprayer. CORY ORCHARDS, Cory, Indiana.

KING WISE POTATO AUTOMATIC weigher, Boggs grader, Oliver digger, Rainbow guns, McDowell 6" pipe, 5000 ft. Skinner lines, three 60 GPM well pumps, 80 HP boiler, portable sash greenhouse 66 x 108. GROSS CELERY FARM, Camp Hill, Pa.

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NATIONALLY ADVERTISED REBUILT Vacuum Cleaners. $39.95 FOB Youngstown, Ohio. World famous models with a complete set of attachments: 1. Rug Nozzle, 2. Floor Brush, 3. Upholstery Tool, 4. Crevice Tool, 5. Dusting Brush. Including completely rebuilt motor with new parts. Also hose, dust bag, filter, 20' cord. Satisfaction guaranteed or your money back. Order yours today. Write BOX 103, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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PEAFOWL, SWANS, PHEASANTS, Guineas, Bantams, Waterfowl. Thirty varieties Pigeons. JOHN HASS, Bettendorf, Iowa.

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CERTIFIED TOMATO, CABBAGE, PEPPER and Onion Plants. All leading varieties. Grown under complete disease control. Satisfaction guaranteed. Write for free pamphlet. JOHN THORNHILL PLANT CO., Tifton, Georgia.

SWEET POTATO PLANTS, NANCY HALLS, Portoricans. Prompt shipments. Carefully packed. Planting guide free. 200, $1.00; 500, $1.75; 1000, $3.25; 5000, $15.00. TAYLOR PLANT CO., Gleason, Tenn.

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The All-Purpose Liquid Fertilizer

Complete with Penetrating Agent — Trace Elements—Plant Growth Stimulant

New, Advanced 10-20-10 Formula— 40% Nutrients

Produces TOP QUALITY Vegetables — BIGGER, BETTER-TASTING

- Gets them to market sooner
- BIGGER YIELD per acre
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- No mixing, dust or odor!

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Best strains of leading varieties. Shipments catering to market gardeners' demands. Free price list.

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VEGETABLES

—who is using the **LOBEE Sizer-Washer-Waxer.** CUSTOMER PREFERENCE for washed-waxed fruit is reported by growers and dealers. Better taste and freshness, better looks—less shrinkage.

See the *gentlest* sizer made —with the chain you can change to a different size in *two minutes!* And you Wash and Wax in the same operation.

Write for names of users in your area.

Lobee Pump & Machinery Co.
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For the Junior Vegetable Growers

FOR some time the rapidly diminishing number of students of vegetable crops in schools and colleges has alarmed educators. Those who major in vegetable crops not only go into commercial vegetable production but also provide candidates for advanced training to replenish the ranks of our professional educators and research experts.

To obtain students for their horticultural courses, some colleges are recruiting high school students. The American Society for Horticultural Science—the professional society for olericulturists (vegetables), pomologists (fruit), and floriculturists (flowers and ornamentals) — has made a special appropriation to help change the trend.

Vegetable growers, too, must help. Some of the great advances in the science of vegetable production have come from the dedicated men and women in our state and federal laboratories. It is this basic research which helps to keep vegetable production up-to-date.

The vegetable field is fortunate in having the National Junior Vegetable Growers Association to help direct the interest of the younger generation into vegetable lines. In this issue you will see the first in a series of bimonthly stories on the doings of the junior vegetable growers.

Like any voluntary organization, they need help and support to continue their valuable program. We hope you will enjoy reading about their activities and will spread their influence by stimulating boys and girls in your community to become active participants in their program.

Precision Spraying in the Twentieth Century

IN the article on page 13, Howard Ingerson makes an excellent point when he says that air spraying is precision spraying. It takes close attention to detail and precise operation of the sprayer to get thorough coverage. But the practical benefits achieved with air spraying are tremendous.

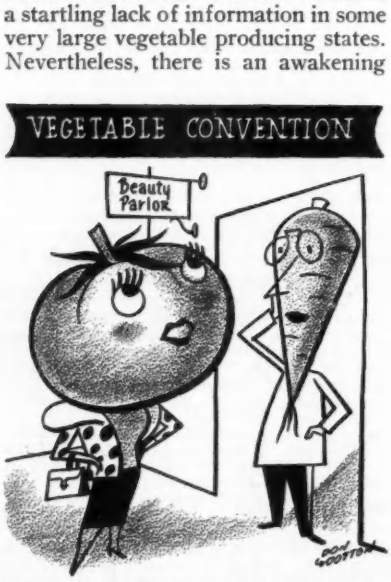
Air spraying (or air-blast spraying, concentrate spraying, mist spraying, speed spraying) got its start with fruit growers after the end of the war when growers were hungry for new equipment and new methods. Progress was slow and mistakes were many in those first years.

Today, fruit growers are able to enjoy many advantages. For instance, Tom LaMont, a large grower in New York state, reports that the change from high pressure sprayers to air sprayer and refill truck cut man labor in half. The change from 1x to 3x concentration reduced man labor another 31 per cent so that roughly two-thirds of his labor was eliminated in the period from 1946 to 1953.

What air spraying meant to grower LaMont's pocketbook is told in the following figures. Despite an increase in average number of sprays applied from 9½ in 1946 to 15 in 1953, the cost of labor and power to spray an acre for the season decreased from $21.96 to $16.50, or about 25 per cent.

Similar savings are available to the vegetable grower. Conservative estimates show 50 per cent reduction in labor and 25 per cent reduction in costs.

Despite such savings, in many vegetable areas there is little or no knowledge about the possibilities of air spraying. A recent survey by AMERICAN VEGETABLE GROWER revealed a startling lack of information in some very large vegetable producing states. Nevertheless, there is an awakening of interest with probably potato and tomato areas leading the way.



"Lady, if I could give you a complexion like they have in the seed catalogs, I'd be a magician!"

For instance, Wayne C. Handwerk, of the Campbell Soup Co., writes in the Pennsylvania Packer *Tomato Yearbook*, "The application of fungicides and insecticides in concentrated form by means of mist blowers in which the pesticide is sprayed into an air stream, varying in volume from approximately 16,000 to 35,000 cubic feet of air per minute at 90 miles per hour, is becoming quite popular in southeastern Pennsylvania in recent years. Approximately 25 per cent of our acreage was sprayed with these machines in 1954.

Earl Wade, extension plant pathologist of the University of Wisconsin, writes that Wisconsin is watching closely the experience of one large potato grower who uses a large air-blast machine. He says, "The sprayer covers 17 rows at one time. I believe this grower has always applied from 70 to 120 gallons of spray per acre. He has used this sprayer for two seasons and is well satisfied."

New York state has an experimental row crop mist applicator developed by the departments of agricultural engineering and entomology at Cornell University. This machine applies spray concentrate at the rate of 10 to 20 gallons per acre.

At Ohio State University, Dr. J. D. Wilson has considerable information on concentrate mixtures and air spraying. In Maryland, Dr. L. P. Ditman of the department of entomology has one-year data on three varieties of tomatoes regarding the efficiency of concentrate spraying with different types of nozzles and pressures.

These and other investigators are rapidly getting a line on how to use air spraying on vegetables. It will require close co-operation between grower, entomologist, pathologist, as well as sprayer manufacturer and spray material manufacturer, and their dealers to put over a successful air spraying program in any community. For air spraying is precision spraying with new things to learn about such old problems as weather, spray formulation, timing, and machinery performance.

Coming Next Month

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- Spray Away Your Weed Troubles
- Tillage Pans Can Be Avoided
- 25 Tons of Tomatoes Per Acre!

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Look at the advantages you get, only with an Oliver:

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Complete versatility in the amount and placement of plant food—your choice of one or two levels of fertilizer bands—even amounts in both bands or 25% in upper band, 75% in deep band. Or, you can have broken bandway fertilization—increases fertilizer efficiency—places plant food beside the plants, skips spaces between the plants.

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Add all these features and you'll see why an Iron Age transplanter means bigger profits—top-quality, bumper yields.

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Here is the Oliver standard transplanter with all the quality features of the Do-Mor except bandway fertilization. Available as trailer-type or tractor-mounted.

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WALTHAM 29

Low and very compact, permitting close planting. Main heads large, uniform blue green color. Heavy crops of large side shoots.

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